SEQUENCE LISTING

<110> Reed, Steven G.
      Lodes, Michael J.
      Houghton, Raymond L.
      Sleath, Paul R.
      McNeill, Patricia D.
      Homer, Mary
      Secrist, Heather

<120> COMPOUNDS AND METHODS FOR THE DIAGNOSIS
  AND TREATMENT OF *B. MICROTI* INFECTION

<130> 210121.426C11

<140> US
<141> 2001-05-09

<160> 224

<170> FastSEQ for Windows Version 3.0

<210> 1
<211> 792
<212> DNA
<213> Babesia microti

<400> 1

```
cactcttttt aatgagcggt gctgtctttg caagtgatac cgatcccgaa gctggtgggc      60
ctagtgaagc tggtgggcct agtggaactg ttgggcccag tgaagctggt gggcctagtg     120
aagctggtgg gcctagtgga actggttggc ctagtgaagc tggtgggcct agtgaagctg     180
gtgggcctag tgaagctggt gggcctagtg aagctggtgg gcctagtgga actggttggc     240
ctagtggaac tggttggcct agtgaagctg gttggtctag tgaacgattt ggatatcagc     300
ttcttccgta ttctagaaga atagttatat ttaatgaagt ttgtttatct tatatataca     360
aacatagtgt tatgatattg gaacgagata gggtgaacga tggtcataaa gactacattg     420
aagaaaaaac caaggagaag aataaattga aaaaagaatt ggaaaaatgt tttcctgaac     480
aatattccct tatgaagaaa gaagaattgg ctagaatatt tgataatgca tccactatct     540
cttcaaaata taagttattg gttgatgaaa tatcaaacaa ggcctatggt acattggaag     600
gtccagctgc tgataatttt gaccatttcc gtaatatatg gaagtctatt gtacttaaag     660
atatgtttat atattgtgac ttattattac aacatttaat ctataaattc tattatgaca     720
ataccgttaa tgatatcaag aaaaattttg acgaatccaa atctaaagct ttagtttttga     780
gggataagat ca                                                        792
```

<210> 2
<211> 2732
<212> DNA
<213> Babesia microti

<400> 2

```
aaaccctaaa   ccctaaaccc   taaaccctaa   accctaaacc   cctaaaccct   aaaccctaaa        60
ccctaaaccc   taaaccctaa   aaccctaaac   cctaaaccct   aaaccctaaa   ccctaaaccc       120
taaaccctaa   accctaaacc   ctaaacccta   aaccctaaac   cctaaaccct   aaaccctaaa       180
ccctaaaccc   taaaccctaa   accctaaacc   ctaaacccct   aaaccctaaa   ccctaaaccc       240
taaaccctaa   accctaaacc   ctaaacccta   aaccctaaac   cctaaaccct   aaaccctaaa       300
ccctaaaccc   taaaccctaa   accctaaacc   ctaaaaccct   aaaccctaaa   ccctaaaccc       360
taaaccctaa   accctaaacc   cctaaaccct   aaaccctaaa   ccctaaaccc   taaaccctaa       420
accccctaaac   cctaaacccc   taaaccctaa   accctaaacc   ctaaacccta   aaccctaaac       480
cctaaaccct   aaaccctaaa   ccctaaaccc   taaaccccta   aaccctaaac   cctaaaccct       540
aaaccctaaa   ccctaaaccc   taaaccctaa   accctaaccc   taaccctaac   cctaacccta       600
acctagcctt   cattgacgtc   tatccccaat   cttagaaaaa   tcttcaaatc   gattctagaa       660
taactggaaa   caattatcag   aaaattgtata  actgcttatt   agcttattag   cttattagtt       720
aggatgtatg   cacattgatg   acaactagat   gcagcaccac   aatcactacc   acgtaccaat       780
catataccaa   taatgtacta   ataatgtacc   aataactatg   gtttataaag   atggtgtcat       840
ttaaatcaat   attagttcct   tatattacac   tcttttaat   gagcggtgct   gtctttgcaa       900
gtgataccga   tcccgaagct   ggtgggccta   gtgaagctgg   tgggcctagt   ggaactgttg       960
ggcccagtga   agctggtggg   cctagtgaag   ctggtgggcc   tagtggaact   gttgggccca      1020
gtgaagctgg   tgggcctagt   gaagctggtg   ggcctagtgg   aactggttgg   cctagtgaag      1080
ctggtgggcc   tagtgaagct   ggtgggccta   gtggaactgt   tgggcccagt   gaagctggtg      1140
ggcctagtga   agctggtggg   cctagtggaa   ctggttggcc   tagtgaagct   ggtgggccta      1200
gtgaagctgg   tgggcctagt   gaagctggtg   ggcctagtga   agctggtggg   cctagtggaa      1260
ctggttggcc   tagtggaact   ggttggccta   gtgaagctgg   ttggtctagt   gaacgatttg      1320
gatatcagct   tcttccgtat   tctagaagaa   tagttatatt   taatgaagtt   tgtttatctt      1380
atatatacaa   acatagtgtt   atgatattgg   aacgagatag   ggtgaacgat   ggtcataaag      1440
actacattga   agaaaaaacc   aaggagaaga   ataaattgaa   aaaagaattg   gaaaaatgtt      1500
ttcctgaaca   atattccctt   atgaagaaag   aagaattggc   tagaatattt   gataatgcat      1560
ccactatctc   ttcaaaatat   aagttattgg   ttgatgaaat   atcaaacaag   gcctatggta      1620
cattggaagg   tccagctgct   gataattttg   accatttccg   taatatatgg   aagtctattg      1680
tacttaaaga   tatgtttata   tattgtgact   tattattaca   acatttaatc   tataaattct      1740
attatgacaa   taccgttaat   gatatcaaga   aaaattttga   cgaatcctgg   acacagacat      1800
taaaagaata   agcctgcttg   ggggtttctg   ggcatctctt   catgagtgcc   agtcacacaa      1860
ctcttctgtg   agccttctac   aataaggact   ttgtgtgctt   cgatattttt   ttagactaaa      1920
gtgaactctc   tcctccacct   ttggcttcag   ttagttattt   caaatggcaa   aagttattaa      1980
aaattccagt   gtggaaactg   gcttaaccaa   caggaaaggg   gttttgaggt   cgcatcacta      2040
agcatcaagt   ttaacaccaa   catgcctgga   ggattggctt   agccggttgc   tagggcaggc      2100
ctgtggcagg   gttcttatcc   cagctattaa   cgctcccttc   ccactcctcc   aagtcctgca      2160
agtcctggat   acagtgaaat   gtaattgcat   atcccatatc   ctttgctagt   atcaaatgga      2220
taaaacccaa   aatggagtca   taccaaatga   tctcatgtat   acaatacctg   aatagtcttg      2280
aactgatgca   ctgttagata   gtatgcactt   actcttcagc   tattcatagt   gtgcctctgc      2340
acagtgatgg   aaaagaggag   cactggggga   gctcggtttt   caagggacaa   aggagaataa      2400
gacacacaaa   gaaatccaag   gtagagcaga   gaaaggatgg   agacacagaa   ggtttgcagg      2460
aacaggaagc   gaaggatgct   ccagtctgag   ggggagggga   aagagagcct   cttgagtagc      2520
cagcacctga   acttggcctg   gaagcttggt   ggataaggca   ggataaagga   ggtgtggcct      2580
ctttggtatc   ctcccattga   taaaggagct   ccctgaccct   tcactagacc   atcatcagtc      2640
ctatggttct   tagaccaata   gaacacaatg   gaattgattt   gttccacttt   ccaggttaag      2700
acttacagtc   agggaagttt   gtttttcttg   cc                                       2732
```

```
<210> 3
<211> 2430
<212> DNA
<213> Babesia microti

<400> 3
aactagatgc agcaccacaa tcactaccac gtaccaatca tataccaata atgtactaat        60
```

```
aatgtaccaa taactatggt ttataaagat ggtgtcattt aaatcaatat tagttcctta      120
tattcactc tttttaatga gcggtgctgt ctttgcaagt gataccgatc ccgaagctgg      180
tgggcctagt gaagctggtg ggcctagtgg aactgttggg cccagtgaag ctggtgggcc      240
tagtgaagct ggtgggccta gtggaactgg ttggcctagt gaagctggtg ggcctagtga      300
agctggtggg cctagtgaag ctggtgggcc tagtgaagct ggtgggccta gtggaactgg      360
ttggcctagt ggaactggtt ggcctagtga agctggttgg tctagtgaac gatttggata      420
tcagcttctt ccgtattcta gaagaatagt tatatttaat gaagtttgtt tatcttatat      480
atacaaacat agtgttatga tattggaacg agatagggtg aacgatggtc ataaagacta      540
cattgaagaa aaaaccaagg agaagaataa attgaaaaaa gaattggaaa aatgttttcc      600
tgaacaatat tcccttatga agaaagaaga attggctaga atatttgata atgcatccac      660
tatctcttca aaatataagt tattggttga tgaaatatca aacaaggcct atggtacatt      720
ggaaggtcca gctgctgata attttgacca tttccgtaat atatggaagt ctattgtact      780
taaagatatg tttatatatt gtgacttatt attacaacat ttaatctata aattctatta      840
tgacaatacc gttaatgata tcaagaaaaa ttttgacgaa tccaaatcta aagctttagt      900
tttgagggat aagatcacta aaaaggatgg agattataac actcattttg aggacatgat      960
taaggagttg aatagtgcag cagaagaatt taataaaatt gttgacatca tgatttccaa     1020
cattggggat tatgatgagt atgacagtat tgcaagtttc aaaccatttc tttcaatgat     1080
caccgaaatc actaaaatca ccaaagtttc taatgtaata attcctggaa ttaaggcact     1140
aactttaacc gttttttaa tatttattac aaaatagatg taataccaga tgtatacatt     1200
attatatatt acaaaattta cacattattt atgtatgaac gaacgaacat ctcagtctta     1260
aatgaagaaa ttgggataaa tatggaaata gattaaagta acatgagaaa gatgaatata     1320
atattagaat atgaaattta acagaaataa aatgaagtaa aagagtgtat tttgtaataa     1380
tttataataa attagtatac aatgattata ttacagatga ctattgatta ttgtatcaat     1440
taaatattga ttattaatga tatcatatat gtatatgtta atgattgatt tgttatacgt     1500
tgtgaatatg ttatataatg acatactata ataattaata taatgtagag gatatttttt     1560
ttaatagtat ttaatgaata ttatagttat aattataata atgtagataa aaatgacatt     1620
aatttgaatg tttaaattga aatgtatgta aaaatatgta tttataatct gaattgatta     1680
ataatataat attctacaat taattatttt tgtaattata ataattgatt atattaatct     1740
ttgaattatt ataaataata ttatacttca ttaaattatt tcacataaat ttccaaatta     1800
ttatccttta tcttaatgtt atccattttt acacatcttt cttcattaca atattttttt     1860
actaatcctg tatgctcata ttcatattct ttagaaatat aacgaaaatt agatgtaact     1920
tcgccactta caagtaaact accatcaata taataataat gaataccatt catgtccgta     1980
tattctttat atttttatc atattttatt ttgtgattat tccattcatt tgtatcatta     2040
ttcaatgaga gaaataatag cagaaagatc cttctataga aacataaaat tcaattaata     2100
ctggattatt atgtttgcaa gtatagatgt ttaaatcaat aacactacca gttggtaatt     2160
tagcattgtc atcaaattca attatataat cagaaatttt gattttatca attttattcg     2220
gatgtgataa tttatttttgt tctgattcat cgatcatgta tacaaatact attgttaaag     2280
gttccctatc cttataatta aagtggccaa taagattggc attaattaca ttagtagtgt     2340
gtgtatttgt aatagtatca ttagtggtac tgacagttgt tataggtttt gatttccata     2400
atgaaacatc atttttatct acacaataca                                      2430


      <210> 4
      <211> 1991
      <212> DNA
      <213> Babesia microti

      <400> 4
aatgtacaag atcaaaattt ctgattatat aattgaattt gatgacaatg ctaaattacc       60
aactgataat gttattggta tatccatcta tacttgtgaa cacaataatc cagtattaat      120
tgaattttat gtttctaaaa aaggatcaat ctgctattat ttctactcaa tgaataatga      180
tacaaataaa tggaataatc acaaaataaa atatgacaaa agatttaatg aacatactga      240
catgaatggt attcattatt attatattga tggtagttta cttgcgagtg cgaagttac      300
atctaatttt cgttatattt ctaaagaata tgaatatgag catacagaat tagcaaaaga      360
gcattgcaag aaagaaaaat gtgtaaatgt ggataacatt gaggataata atttgaaaat      420
```

```
atatgcgaaa cagtttaaat ctgtagttac tactccagct gatgtagcgg gtgtgtcaga       480
tggattttt  atacgtggcc aaaatcttgg tgctgtgggc agtgtaaatg aacaacctaa       540
tactgttggt atgagtttag aacaattcat caagaacgag ctttattctt ttagtaatga       600
aatttatcat acaatatcta gtcaaatcag taattcttc  ttaataatga tgtctgatgc       660
aattgttaaa catgataact atattttaaa aaaagaaggt gaaggctgtg aacaaatcta       720
caattatgag gaatttatag aaaagttgag gggtgctaga agtgagggga ataatatgtt       780
tcaggaagct ctgataaggt ttaggaatgc tagtagtgaa gaaatggtta atgctgcaag       840
ttatctatcc gccgccttt  tcagatataa ggaatttgat gatgaattat tcaaaaaggc       900
caacgataat tttggacgcg atgatggata tgattttgat tatataaata caaagaaaga       960
gttagttata cttgccagtg tgttggatgg tttggatta  ataatggaac gtttgatcga      1020
aaatttcagt gatgtcaata atacagatga tattaagaag gcatttgacg aatgcaaatc      1080
taatgctatt atattgaaga aaaagatact tgacaatgat gaagattata agattaattt      1140
tagggaaatg gtgaatgaag taacatgtgc aaacacaaaa tttgaagccc taaatgattt      1200
gataatttcc gactgtgaga aaaaaggtat taagataaac agagatgtga tttcaagcta      1260
caaattgctt ctttccacaa tcacctatat tgttggagct ggagttgaag ctgtaactgt      1320
tagtgtgtct gctacatcta atggaactga atctggtgga gctggtagtg gaactggaac      1380
tagtgtgtct gctacatcta ctttaactgg taatggtgga actgaatctg gtggaacagc      1440
tggaactact acgtctagtg gaacttggtt tggaaaatga aaaattagct ctagaaacac      1500
tttattgtta atttttaaaa acctattgaa aaatcagatt gtaaaacata attccacttc      1560
taaccatgct atgatttaac taatcaggac aaaaagaaag cataatcaac attattcatt      1620
cagtgatggt gacataattc agagaatgtg gcaattgcct cttgaagacc agagttccat      1680
ccacaggacc cacatggtta aaggagagag ctaactcctg aaagttgtcc tctgactaac      1740
acattcaact tttgagtgtc tcatttatgt gttggcttct gtctaatgtg ggaaaatcat      1800
taagggctct aaaatcagat cctcattctc tctattaata aactatgtga taacatcctt      1860
cagctatgaa aatgtcagga gagagtcagg aaaatggaag atattgttca ggacttaact      1920
aggtggtggc acacagttcc tttacacaga ttcctcagga caagttttag gtgaggtttt      1980
gatctatcct g                                                          1991
```

```
<210> 5
<211> 1271
<212> DNA
<213> Babesia microti

<400> 5
ttcactaggc caaccagctt cactaggcca accagcttca ctaggccaac cagcttcact        60
aggccaacca gcttcactag gccaaccagc ttcactaggc caaccagttc cactaggccc       120
accagcttca ctaggcccac cagcttcact aggcccacca gcttcactag gccaaccagt       180
tccactaggc ccaccagctt cactaggccc accagcttca ctaggcccac cagcttcact       240
aggcccacca gcttcactag gcccaccagc ttcactaggc ccaccagctt cactaggccc       300
accagcttca ctaggcccac cagcttcact aggcccaaca gttccactag gcccaccagc       360
ttcgcgatcg gtatcacctg caaagacagc accgctcatt aaaagagtg  taatataagg       420
aactaatatt gatttaaatg acaccatctt tataaccat  agttattggt acattattag       480
tacattattg gtatatgatt ggtacgtggt agtgattgtg gtgctgcatc tagttgtcat       540
caatgtgcat acatcctaac taataagcta ataagctaat aagcagttat acaatttctg       600
ataattgctt ccagttattc tagaatcgat ttgaagattt ttctaagatt ggggatagac       660
gtcaatgaag gctaggttag ggttagggtt agggttaggg ttagggttta gggtttaggg       720
tttagggttt agggtttagg gttagggttt agggtttagg gtttagggtt aggctcccca       780
agttgtcccg tgaaagggcc gtgtctttga taaattttgc cgtcctgtac gtttcctttc       840
tagaatgcac aaaaacaaga atttggcagc tagaaacatc gttaatcacc tcttggtaga       900
gaatttcgtt gattgcgttg aaacgtttga tagccttctt ctccttcacg ccataataca       960
cctgctccaa gggcacaggc ctaaagtggc tgccaaagta gaaaagccct cggtctagat      1020
taacagtgag aaatctagcc acgtcttcgt agtttggaag cgtggccgat agaccaacta      1080
gccttacgcg ttcgggcctc tgactcaggc gggccacaat agcctccagc actggacccc      1140
tagtgtcatg gagtaggtgt atttcatcaa ttataaccaa tctaagccgc tcaagcaggg      1200
```

```
gctcattgcc tgttttacgt gtaactacgt caaacttctc tggcgtagtt acaattatat    1260
gcgttttctc a                                                         1271
```

        <210> 6
        <211> 1821
        <212> DNA
        <213> Babesia microti

        <400> 6
```
taaaccctaa accctaaac cctaaaccct aaaccctaaa ccctaaaccc taaacccta     60
aaccctaaac cctaaaccct aaaccctaaa ccctaaccct aaaccctaaa ccctaaaccc    120
taaaccctaa accctaaccc taaccctaac cctaacccta acctagcctt cattgacgtc    180
tatccccaat cttagaaaaa tcttcaaatc gattctagaa taactggaag caattatcag    240
aaattgtata actgcttatt agcttattag cttattagtt aggatgtatg cacattgatg    300
acaactagat gcagcaccac aatcactacc acgtaccaat catataccaa taatgtacta    360
ataatgtacc aataactatg gtttataaag atggtgtcat ttaaatcaat attagttcct    420
tatattacac tctttttaat gagcggtgct gtctttgcag gtgataccga tcgcgaagct    480
ggtgggccta gtggaactgt tgggcctagt gaagctggtg ggcctagtga agctggtggg    540
cctagtgaag ctggtgggcc tagtgaagct ggtgggccta gtgaagctgg tgggcctagt    600
gaagctggtg ggcctagtga agctggtggg cctagtgaag ctggtgggcc tagtggaact    660
ggttggccta gtgaagctgg ttggcctagt gaagctggtt ggcctagtga agctggttgg    720
cctagtgaag ctggttggcc tagtgaagct ggttggccta gtgaacgatt ggatatcag    780
cttctttggt attctagaag aatagttata tttaatgaaa tttatttatc tcatatatac    840
gaacatagtg ttatgatatt ggaacgagat agggtgaacg atggtcataa agactacatt    900
gaagaaaaaa ccaaggagaa gaataaattg aaaaaagaat tggaaaaatg ttttcctgaa    960
caatattccc ttatgaagaa agaagaattg gctagaataa ttgataatgc atccactatc   1020
tcttcaaaat ataagttatt ggttgatgaa atatccaaca aagcctatgg tacattggaa   1080
ggtccagctg ctgatgattt tgaccatttc cgtaatatat ggaagtctat tgtacctaaa   1140
aatatgtttc tatattgtga cttattatta aaacatttaa tccgtaaatt ctattgtgac   1200
aataccatta atgatatcaa gaaaaatttt gacgacatag agaaattggg ctgttttcaa   1260
gctagaagct tcctccctgt taactaatgt attcatggtg ccagaaggtg ctatgcaggt   1320
tgctagggaa tcaaattcat caatagtcct gcccaagagt agtgtgttaa ctggcggtgc   1380
aagatgtgcc ctttgatgca gtagtggcat gcttgtttgt ggggtaaccc agtgctttct   1440
gattgaggtc tactccacag gaggaataga tacctgcttc tgtaaacttg gtcaaaactt   1500
atgactgcac atgaagacag agtggaaaag acctgaaaac acacacgggg tcaggactga   1560
ggaagacagg gttagtatta gagagatttg gggaaaaaaa gagttagcaa atatagagtg   1620
tgatagtcta atggggggat gaatggtatc aaaatgaatt atttatatgt ataaaactga   1680
caatttttta attgtgaaaa ggaatgcaat ccgacccatc tggggaatt ctagctagca   1740
tcagtgagag aagaggcaag gtgttaggaa atcgtgcaga acatgctcat ccaggcttta   1800
tttctccatt tacatctaga g                                             1821
```

        <210> 7
        <211> 4223
        <212> DNA
        <213> Babesia microti

        <400> 7
```
catcacaatt attggctgtt acatcactat agtgctgtat gtaaaaaatt ataaagtgtg     60
acatcattat aatgcaatat gacatcacaa ttatatactg tgacttcact atcttgcact    120
ttaacatcac aattatacat tgtgacatca atatactgca ctatgacatc acgattattg    180
actgtgacat caatacattc tctatgaaca cagttataca ctctgacatc actagcttgc    240
actgtgacat gacaattaaa aactgtgaca tcaatataat ggactgtgac ctacaattat    300
tcactgtgaa accacaacac tgcaattgtg tataattggg atgggtactg atctgctgcc    360
cgaggctcaa tagattacct aggcctcctc actgacaccc acattcaggg ggtcttgatc    420
```

```
agtcccatga tggattccca ggctgatgcc tgggattcaa gagttaacct ttgtctggtc    480
agctctttct gggggttaaa cggattaaat gttttaataa taagtcacaa tatagaaaca    540
tattttttagg tacaatagac ttccatatat tacggaaatg gtcaaaatca tcagcagctg    600
gaccttccaa tgtaccatag gctttgttgg atatttcatc aaccaataac ttatattttg    660
aagagatagt ggatgcatta tcaattattc tagccaattc ttctttcttc ataagggaat    720
attgttcagg aaaacatttt tccaattctt ttttcaattt attcttctcc ttggtttttt    780
cttcaatgta gtctttatga ccatcgttca ccctatctcg ttccaatatc ataacactat    840
gttcgtatat atgagataaa taaatttcat taaatataac tattcttcta gaataccaaa    900
gaagctgata tccaaatcgt tcactaggcc aaccagcttc actaggccaa ccagcttcac    960
taggccaacc agcttcacta ggccaaccag cttcactagg ccaaccagct tcactaggcc   1020
aaccagcttc actaggccca ccagcttcac taggcccacc agcttcacta ggcccaccag   1080
cttcactagg cccaacagtt ccactaggcc caccagcttc actaggccca ccagcttcac   1140
taggcccacc agcttcacta ggcccaccag cttcactagg cccaccagct tcactaggcc   1200
caccagcttc actaggccca ccagcttcac taggcccaac agttccacta ggcccaccag   1260
cttcgcgatc ggtatcacct gcaaagacag caccgctcat taaaaagagt gtaatataag   1320
gaactaatat tgatttaaat gacaccatct ttataaacca tagttattgg tacattatta   1380
gtacattatt ggtatatgat tggtacgtgg tagtgattgt ggtgctgcat ctagttgtca   1440
tcaatgtgca tacatcctaa ctaataagct aataagctaa taagcagtta tacaatttct   1500
gataattgct tccagttatt ctagaatcga tttgaagatt tttctaagat tggggataga   1560
cgtcaatgaa ggctaggtta gggttagggt tagggttagg gttagggttt agggtttagg   1620
gtttagggtt tagggtttag ggttagggtt tagggtttag ggtttagggt ttagggttta   1680
ggggtttagg gtttagggtt tagggtttag ggtttagggt ttagggttta gggaaggctg   1740
agaaccactg acttagactt ccaagacttt gtcatcttta tgacttgccg gttgcctcgt   1800
ttctccacac agcaacctat gttctctctt attacagttt ctgtgggaca tgtcatgctt   1860
ccagcttcga gaatggaagc ctattgtctt aatgggtgag caaagtgggc ccattcatta   1920
atcacagact aatccaaaag gaaatgtgac acctgaccta agtccgacca ataggagcca   1980
ggaaagctca cttctggaat tgtgacttag atatcacgga tgcatacaga ctctttttcc   2040
tgctgaaaca aatggtgagg acctgtccac ccttgtggga agcttgcagt gtaagattct   2100
aatccatatt ggggaaataa ggctgagaag agagagttcc aggccttgtg acagaatcta   2160
atccctggat aaagtctctc tttttacaaa gaacatcagt gttgcaagct ccaaattcct   2220
gttcttactt tcttgagtct gttttcttta tgtataaccc aaagcacttt aactgacaca   2280
gctgtgaagt gagaatattt catagaaatc ctattgtttt gatgtcttct aaaaaagaaa   2340
aaaagcaatg atctgtaaca ttttttaact taaataatta gattgattta agtgacatca   2400
aaacatctgg aaaatggtgt ggacacaaat tcactagaga gccatatttt ttgctaacta   2460
attgagaaat taatcactgg caagtctttg gtaaaagtat cacctcagtc atgatctctc   2520
ctgccttcat gacattttcc tcattggtgt gaggatgcta ttctgctttc tatgtgacca   2580
ggaaatagtg ctgtcttctg tctagttatg atttaggttg tacaccaggt tttcacatat   2640
gttccctaac gtctgtagta ggaccaggga ctggttggct tcaagttgtt ggatatggtt   2700
accttaagtc attcatgtac aggaactcat ttgagatgat aggaaatgaa gtgaaagatt   2760
ttcttgcccc tgttaagtaa gataaaaagg attgttatga tggggcagga gcagatctat   2820
ttccaataaa cagaatttga agtgtttgtg tgatattcag atacctcatt gtcatttgaa   2880
tgaattactc ctgctctcag tgaagatgtc taagctgcaa ataagaaatg gagagcgctg   2940
tcagaagtca gatggaattg agaatagggg cctggctgca atctgtggag actgcctaaa   3000
gcagctagat aagaaactag cagctgggga gagaaagatc gaatttagtc ggcctgtttt   3060
atattttctt ataaaaaata actgcttcga aatgtttgag aagatagagg caatgagcag   3120
aaagttgttc cttaaatcag ttatagaatg aacacataca cgggcactca gatcaagcca   3180
tgctgagctt gagacaccgg gtgacgcgtg acttgtttat tcccaggctg caaaggagag   3240
taaatgaagt aacgggaagg cccggtgtgg taggcacact cctgcctggc accatctgct   3300
gcttttgtcc ctgttactcc ttgttccttt ccctcctttt ctccctccct tcctccctcc   3360
ctctctccct ccttcacact tctgtcttta tttcctcctg ggagttaatt ggtggtagcc   3420
cctctgtgct gttctttcgg gggtgccttt aatttcgaca atacaatgcc atccatgggg   3480
gcattttata tacagtaata attgtcattg atgtggccat aaggtacttt tttgtggtac   3540
ccttcttgaa cagaacagac acagaagggc gtgcgtgcgt gcgtgcgtgc gtgcgtgcgt   3600
gcgtgtgtgc gtgtgtgcgt gcgtgtgtgc gtgtgtgcgt gcgtgcgtgt gtgcgtgcgt   3660
```

```
gcgtgtgtgc gtgtgtgtgt gtgtgtgtgt gtgtgtgtgt gtgtgtgtgt gtgtgttggg    3720
atgggtggg  gagcgctagc ttcctacttg ttgtagggtg atgaggtttt atatagtctg    3780
tttctgagac agttaccaaa tccagctggg ttactttttt tttggttttt tatgagacag    3840
ggtttctctg tattgttttg gaggctgtcg gtccagcctg gtctcgaact cacagagatc    3900
cgcctgcctc tgcctcccga gtgctgggat taaaggtgtg cgccaccacc gcccggcccc    3960
agctgggtta cttatcactc agtggatctt tctcttttct ttgtaagaag aactttgcat    4020
tgtgggtcgt catggaagaa cacttggaaa ggtacccttt ctgccccacc cgtttattga    4080
atgagtcttt tttttttta attaaatagc agaactttgg ggaaagattt agaaaaggcc    4140
cttttcatat tataatacga ggtataggat ggtttaagat aagagacttt ttgttagctg    4200
                                                                     4223
ttatcagttg agaaaggcac gag
```

        <210> 8
        <211> 2287
        <212> DNA
        <213> Babesia microti

        <400> 8

```
ttataaacat atctaaatat tttaataata atgatgaaat ttaacataga taagataata     60
ttaatcaatt taatagtatt attgaatcga aatgtagtgt attgtgtgga tacaaataat    120
agttcattaa ttgaatcaca accagtaaca actaacattg acactgataa tacaattaca    180
acaaataaat acactggtac tataattaat gccaatattg ttgagtaccg tgaatttgag    240
gatgaacctt taacaatagg gtttagatac actatagata aatcacaaca aaataaatta    300
tcacatccaa ataaaattga taaaatcaaa ttttctgatt atataattga atttgatgac    360
aatgctaaat taccaactga taatgttatt tgtatatcca tctatacttg caagcataat    420
aatccagtat taattagatt ctcatgttct atagaaaaat attactacca ttacttctac    480
tcaatgaata atgatacaaa taaatggaat aatcacaaat taaaatatga taaaacatac    540
aatgaatata ctgacaataa tggtgttaat tattataaaa tctattatag tgataaacag    600
aattccccta ctaatggaaa tgaatatgag gatgtagcat tagcaagaat acattgtaat    660
gaagaaagat gtgcaaatgt aaaggtagat aaaattaaat ataagaattt ggaaatttat    720
gtgaaacagt taggtactat aattaatgcc aatattgttg agtaccttgt atttgaggat    780
gaacctttaa caatagggtt tagatacact atagataaat cacaacaaaa tgaattatca    840
catccaaata aaatttataa aatcaaattt tctgattata taattgaatt tgatgatgat    900
gctaaattaa caacaattgg tactgttgaa gatataacca tctatacttg caagcataat    960
aatccagtat taattagatt ctcatgttct atagaaaaat attactacta ttacttctac   1020
tcaatgaata ataatacaaa taaatggaat aatcacaact taaaatatga taatagattc   1080
aaagaacata gtgacaagaa tggtattaat tattatgaaa tctcagcttt caaatggagt   1140
ttctcttgtt ttttcgttaa taaatatgag cataaagaat tagcaagaat acattgtaat   1200
gaagaaagat gtgcaaatgt aaaggtagat aaaattaaat ataagaattt ggaaatttat   1260
gtgaaacagt taggtactat aattaatgcc aatattgttg agtaccttgt atttgaggat   1320
gaacctttaa caatagggtt tagatacact atagataaat cacaacaaaa tgaattatca   1380
catccaaata aaatttataa aatcaaattt tctgattata taattgaatt tgatgatgat   1440
gctaaattaa caacaattgg tactgttgaa gatataacca tctatacttg caagcataat   1500
aatccagtat taattagatt ctcatgttct atagaaaaat attactacta ttacttctac   1560
tcaatgaata ataatacaaa taaatggaat aatcacaact taaaatatga taatagattc   1620
aaagaacata gtgacaagaa tggtattaat tattatgaaa tctcagcttt caaatggagt   1680
ttctcttgtt ttttcgttaa taaatatgag cataaagaat tagcaagaat acattgtaat   1740
gaagaaaat  gtgtaaatgt aaaggtagat aacattggga ataaaatttt ggaaatttat   1800
gtgaaataat ttaatgaagt ataatattat ttataataat tcaaagatta atataattaa   1860
ttattataat tacaaaaata attaattgta gaatattata ttattaatca attcagatta   1920
taaatacata tttttacata catttcaatt taaacattca aattaatgtc atttttatct   1980
acattattat aattataact ataatattca ttaaatacta tttaaaaaaa tatcctctac   2040
attatatcaa tcaatataat atacaattat ataatatatt cacaatgtat aacaatcaac   2100
cctaacatgt acatacataa tatcattact aatcaatatt taattaataa aatatttaat   2160
agtcatctgt aatataatca ttgtatacta atttattata aattattaca aaatacactc   2220
```

```
ttttacttca ttttatttct gttaaatttc atattctaat attatattca tctttctcat   2280
gttactt                                                              2287


        <210> 9
        <211> 2784
        <212> DNA
        <213> Babesia microti

        <400> 9
        cactgctttc gcagcgtttc ttgcttttgg gaatatctca cctgtacttt ctgctggtgg   60
        tagtggtggt aatggtggta atggtggtgg tcatcaagag caaaataatg ctaatgatag   120
        tagtaatccc accggagccg gtggacaacc caataacgaa agtaagaaaa aggcagtaaa   180
        acttgacttg gacctcatga aagaaacaaa gaatgtttgc accactgtta atactaaact   240
        agtcggaaaa gcaaagagca aattaaacaa attagaaggt gaatcccata aggagtatgt   300
        agctgagaaa acgaaggaga tagatgagaa aaataagaaa tttaacgaga atcttgttaa   360
        aatagagaaa aagaagaaaa ttaaggttcc tgccgatact ggtgctgaag tggatgctgt   420
        tgatgatggt gttgcgggtg cactatccga tttatcctcc gatatctccg ctattaagac   480
        tctcaccgac gatgtatccg agaaggtttc tgaaaacttg aaagatgatg aggccagtgc   540
        aacagaacac actgatataa aagaaaaagc caccctgctt caagagtctt gcaacggaat   600
        tggcactatc ctagataagt tggccgaata tttaaataat gatacaactc aaaatatcaa   660
        gaaagaattt gatgaacgca agaagaatct cacctctttg aagacaaagg tagaaaataa   720
        ggatgaagat tatgttgatg ttaccatgac atcaaaaaca gatctgataa tacactgttt   780
        aacttgcaca aacgatgcac acggactgtt tgatttcgaa tcgaagagct tgataaaaca   840
        aacctttaaa ttgaggtcca agatgaagg tgaactctgc taatttagat tttagatggg   900
        ccatgtatat gttaaacagc aagattcatc ttatagaaag cagtttgatc gataacttca   960
        ccttggataa tccatccgca tacgaaattt tacgcgtttc ttataactca aatgaatttc   1020
        aagtacaatc accgcagaac attaacaatg aaatggaatc ttcaacgccc gaatccaata   1080
        tcatttgggt tgtacatagt gatgttataa tgaaaaggtt caactgtaaa aatcgcaaat   1140
        ctctcagtac tcattcactc actgaaaatg atattctcaa gtttggccgt atagaactct   1200
        ctgttaaatg tataattatg ggcgcaggta tcactgcatc tgatcttaat ctaaagggat   1260
        tggggtttat tagtccagat aaacaatcaa ctaatgtatg taactatttt gaagatatgc   1320
        atgaatctta tcatattctt gatacacaaa gggcctcgga ttgtgtatca gatgatggcg   1380
        ctgatattga tatatccaac ttcgacatgg tccaagacgg taacataaat tctgttgacg   1440
        ctgattctga aacatgtatg gcaaactctg gcgtaacggt caataatact gaaaatgtta   1500
        gtaatagtga gaattttgga aaattaaaat cattggtaag caccaccact cctttgtgcc   1560
        gtatttgcct gtgtggtgaa tcagaccctg gccactagt aacccccttgc aattgcaagg   1620
        ggtccctaaa ttatgtccat cttgaatgcc taaggacttg gattaaaggg cggttgtcaa   1680
        ttgtgaagga tgatgatgct tccttttct ggaaagagct atcatgtgag ctatgcggga   1740
        agccgtatcc atcggtccta caagtagatg atacagagac taatttgatg gatataaaaa   1800
        aaccggatgc accatatgtg gtattggaaa tgagatcaaa ttctggtgat gggtgtttcg   1860
        ttgtttctgt agctaaaaat aaggcgatta ttggacgggg gcatgaaagt gacgttaggt   1920
        tgagtgatat ttcagtgtca cgaatgcatg cttctttgga attggatggt ggaaaagtag   1980
        tgatacatga ccagcaatct aagtttggta cactcgttag ggccaaagcg cctttttcaa   2040
        tgcctataaa gggtcccatc tgtctacagg taagcatttt cttttttgaac ttgaaaatat   2100
        ctactcatag tctaaccatg gagaggggca tggaacatgt ccttctctaa tatttccaaa   2160
        aaggatctat gcctgataac cttggtattg aaggtggctt tctcaaagtg agacattcca   2220
        tttctgttgt tggagctatc ctatctgagg ttagtgttct ggtaaacatt cctagaaaac   2280
        tcataaagca gaaatctgtg tgtatactaa attgcacaga gaactccacg tgtgtgctag   2340
        acttcacaga gaactctgtg tgtgtgctaa actgcataga gaagaacatg ttgagtgcat   2400
        catggttgag ggaaattgct ttatataaaa gatttatttt cctaaggtaa cttaggatta   2460
        attttttctga aagcttagtt ttggtgagca caattgtgat ctttgtttct cagatggtcg   2520
        ggaaggcact cccagaaagc aggtggatac acactacact gcatgctaca ctctgtagac   2580
        taggagtatc gttttcacac ttatgaaata gtcaccatgc tgggcacaaa tatctttta   2640
        tacaccatat attgttcatg ttcaggtcca catttcaatt tgtatgtgaa aagcatccgg   2700
```

```
ggctgtctga taaacacata gaaatgaagg aaacagtgta tgtaactgaa gccttcagtc    2760
ctttgcaatt tctttgattc ttag                                          2784
```

        <210> 10
        <211> 3701
        <212> DNA
        <213> Babesia microti

        <400> 10
```
acctatttat aatatagtat attactggtt tgttttaaat cgaaaaaatg tattgtattt     60
aagaatgaaa ttatttattt atcatgatta tcatatttct aaatattaaa atctagtaac    120
ggttgcttga atatttattt aaattatatg tagtagtatt aaaatgtgtt atatataagt    180
agtgttctaa atcatcatta gtaatattgt ataaattaat tgtaaaaatt gcgatactac    240
aattaatcaa caattaaaat atatcagtat agataattta aataaataat tagataagat    300
cttaaggatt aaatgacgaa tttagaatga taaataatca tcataggcat ttgttataat    360
atcattaatt atattcatgt ggttataatt ataaagtat atatagtttt gtaattgtaa     420
tgatataaaa ttagaacaga tataattaat aattcaaata ttatattaat tttattatat    480
atgattatta ttgatattta tataattaca tattgttatt gtatcattta atgattatat    540
atcaatatcc atatatatat ataataattg aattataatt aaattaattg gcatattaca    600
tttataataa tatattatta gtcaatatga catcatatta tattatccat catgattgtg    660
aatgtaacta gaacattgat tattatatta aatcacatat taatactgat tataataata    720
tcattgataa tctaataata tagtattatc tctaataata ttgtattatc tctaatatta    780
tggtataata gatactgtga aaataaattc aactggagat aaggaaacca ttttgtatag    840
atattttata caaattatta tgaaataatc taaataaatg acaaaaaatc gattatacaa    900
atcacattaa tgacaaacaa acttgtatac atatattgat taacattaca aaactaaatt    960
ataatattta gattgataat tgttataata cttaacaata ttctactttt taatataatt   1020
ttttattcaa taatatactc tttcatattt tgtactattt tatataatca tatatattat   1080
ataattatat atatttgata attgaatata tcaataatga tgatatacat gaatatgcat   1140
atatacccca tataatgtta ttatatttag tgcttacatt attaattata aatatattta   1200
aataattaaa taataatgaa aattaacata gacaatataa tattaatcaa tttgataata   1260
ttattgaatc gtaatgtagt atattgtgtg gataaaaatg atgtttcatt atggaaatca   1320
aaacctataa caactgtcag taccactaat gatactatta caaataaata cactagtact   1380
gtaattaatg ccaattttgc tagctaccgt gaatttgagg ataggggaacc tttaacaata   1440
ggatttgaat acatgatcga taaatcacaa caagataaat tatcacatcc aaataaaatt   1500
gataaaatca aaatttctga ttatataatt gaatttgatg acaatgctaa attaccaact   1560
ggtagtgtta atgatatatc catcattact tgcaagcata ataatccagt attaattaga   1620
ttctcatgtt taatagaagg atctatctgc tattattct acttattgaa taatgataca    1680
aataaatgga ataatcacaa attaaaatat gataaaacat acaatgaaca tactgacaat   1740
aatggtatta attattataa aatcgattat agtgaatcta cagaacctac taccgaatct   1800
actacctgtt tttgtttcg caaaaaaaat cataaatctg agcgtaaaga attagaaaat    1860
tataaatatg agggtacaga attagcaaga atacattgta ataaagggaa atgtgtaaaa   1920
ttgggtgaca ttaagataaa ggataagaat ttggaaattt atgtgaaaca gttaatgtct   1980
gtaaatactc cagtaaattt tgacaaccct acatcgatta atctaccaac tgtcagtact   2040
accaatgata ctattacaaa taaatacact ggtactataa ttaatgccaa tattgttgag   2100
tactgtgaat ttgaggatga acctttaaca ataggggttta gatacactat agataaatca   2160
caacaaaata aattatcaca tccaaataaa attgataaaa tcaaattttt tgattatata   2220
attgaatttg atgatgatgt taaattacca acaattggta ctgtcaatat tatatatatc   2280
tatacttgcg agcataataa tccagtatta gttgaattta gtttctat agaagaatct    2340
tactactttt acttctactc aatgaataat aatacaaata aatggaataa tcacaaatta   2400
aaatatgata aaagattcaa aaaatatact aagaatggta ttaattgtta tgaatatgta   2460
cttcgtaaat gcagttctta tactcgtaaa aatgaatatg agcataaaga attagcaaga   2520
atacattgta atgaagaaaa atgtgtaaat gtaaaggtag ataacattga gaaaaagaat   2580
ttggaaattt atgtaaaata atttaacgaa gtgtaatatg taaaatagtt taatgaagta   2640
taatattatt taaaataatt caaaatttca gaaattaata taattaatta ttataaatac   2700
```

```
aaaataatta attacaaatg tgtattgtta gttatttcag attgtaaata catattttac   2760
atacattttt attaaaactt tcaaattaat attttcattt ttataagcat tattataatt   2820
atatactata attatcagtc atcaaataat atccaaagtt atcctctaca ttatatcaat   2880
catacagtat acaattatat aaaatattaa caacatataa caaccaacat taatatatac   2940
ataatatctt tattaatcaa tatttaatca atacaataat taatagttaa ctaactatac   3000
acatagtgta tactaaatta ttataaatta tatgttataa ttacaaaaac gtcatttact   3060
tattttattt cagttatgtt tcatagtcta atttagattt ggtgaaacgc atctggctga   3120
tgtgctggtg agcaagcagt tccacgaagc aaacaatatg actgatgcgc tggcggcgct   3180
ttctgcggcg gttgccgcac agctgccttg ccgtgacgcg ctgatgcagg agtacgacga   3240
caagtggcat cagaacggtc tggtgatgga taaatggttt atcctgcaag ccaccagccc   3300
ggcggcgaat gtgctggaga cggtgcgcgg cctgttgcag catcgctcat ttaccatgag   3360
caaccccgaa ccgtattcgt tcgttgattg gcgcgtttgc gggcagcaat ccggcagcgt   3420
tccatgccga agatggcagc ggttacctgt tcctggtgga aatgcttacc gacctcaaca   3480
gccgtaaccc gcaggtggct tcacgtctga ttgaaccgct gattcgcctg aaacgttacg   3540
atgccaaacg tcaggagaaa atgcgcgcgg cgctggaaca gttgaaaggg ctggaaaatc   3600
tctctggcga tctgtacgag aagataacta aagcactggc ttgataaata accgaatggc   3660
ggcaatagcg ccgccattcg gggaatttac ccctgttttc t                       3701
```

<210> 11
<211> 1287
<212> DNA
<213> Babesia microti

<400> 11
```
ctcgtgccgc tcgtgccgat tattataaat atttagttga tgaatatagt tctcccaggg    60
aggaaagaga attagcaaga gtacattgta atgaagaaaa atgtgtaaaa ttggatggca   120
ttaagtttaa ggataagaat ttggaaattt atgtgaaaca gttaatgtct gtaaatactc   180
cagttgtatt tgacaacaat acattgatta atccaactag cagcagtggt gccactgatg   240
acataacata tgaattatcg gtggaatcac aacctgtacc aactaacatt gacacaggta   300
ataatattac aacaaataca tcaaataata atctaattaa agctaaattt ctttataatt   360
ttaatcttcc tggtaaacct tcaacaggac tatttgaata cactatagat aaatcagaac   420
aaaataaatt atcacatcca aataaaattg ataaaatcaa attttctgat tatataattg   480
aatttgatga tgatgctaaa ttaccaacaa ttggtactgt caatattata tccatcatta   540
cttgcaagca taataatcca gtattagttg aatttatagt ttctacagaa atatattgct   600
actacaatta cttctactca atgaataata atacaaataa atggaataat cacaaattaa   660
aatatgataa aagatataaa gaagaatata cagatgataa tggtattaat tattataaat   720
taaatgatag tgaacctact gaatctacag aatctactac ctgtttttgt tttcgcaaaa   780
aaaatcataa atatgaaaat gagcgtacag cattagcaaa agaacattgc aatgaagaaa   840
gatgtgtaaa ggtagataac attaaggata taaatttgga aatttatcta aaataatta   900
acgaagtata atattattta taataattca aaatttcaga aattaatata attaattatt   960
ataaatacaa aataattaat tacaaatgtg tattgttagt tatttcagat tgtaaataca  1020
tattttacat acattttat taaaactttc aaattaatat tttcatttt ataagcatta  1080
ttataattat atactataat tatcagtcat caaataatat ccaaagttat cctctacatt  1140
atatcaatca tacagtatac aattatataa aatattaaca acatataaca accaacatta  1200
atatatacat aatatcttta ttaatcaata tttaatcaat acaataatta atagttaact  1260
aactatacac atagtgtata ctaaatt                                      1287
```

<210> 12
<211> 572
<212> DNA
<213> Babesia microti

<400> 12
```
cttcattgac gtctatcccc aatcttagaa aaatcttcaa atcgattcta gaataactgg    60
```

```
aaacaattat cagaaattgt ataactgctt attagcttat tagcttatta gttaggatgt      120
atgcacattg atgacaacta gatgcagcac cacaatcact accacgtacc aatcatatac      180
caataatgta ctaataatgt accaataact atggtttata aagatggtgt catttaaatc      240
aatattagtt ccttatatta cactcttttt aatgagcggt gctgtctttg caagtgatac      300
cgatcccgaa gctggtgggc ctagtgaagc tggtgggcct agtgaagctg gtgggcctag      360
tggaactgtt gggcccagtg aagctggtgg gcctagtgaa gctggtgggc ctagtggaac      420
tggttggcct agtgaagctg gtgggcctag tgaagctggt gggcctagtg gaactggttg      480
gcctagtgaa gctggttggt ctagtgaacg atttggatat cagcttcttc cgtattctag      540
aagaatagtt acatttaatg aagtttgttt at                                    572
```

        <210> 13
        <211> 2338
        <212> DNA
        <213> Babesia microti

        <400> 13
```
ctcgtgccga atcttagaaa aatcttcaaa tcgattctag aataactgga acaattatc       60
agaaattgta taactgctta ttagcttatt agcttattag ttaggatgta tgcacattga      120
tgacaactag atgcagcacc acaatcacta ccacgtacca atcatatacc aataatgtac      180
taataatgta ccaataacta tggtttataa agatggtgtc atttaaatca atattagttc      240
cttatattac actctttta atgagcggtg ctgtctttgc aagtgatacc gatcccgaag       300
ctggtgggcc tagtggaact gttgggccca gtgaagctgg tgggcctagt gaagctggtg      360
ggcctagtgg aactggttgg cctagtgaag ctggtgggcc tagtgaagct ggtgggccta      420
gtggaactgg ttggcctagt gaagctggtt ggtctagtga acgatttgga tatcagcttc      480
ttccgtattc tagaagaata gttacattta atgaagtttg tttatcttat atatacaaac      540
atagtgttat gatattggaa cgagataggg tgaacgatgg tcataaagac tacattgaag      600
aaaaaaccaa ggagaagaat aaattgaaaa aagaattgga aaaatgtttt cctgaacaat      660
attcccttat gaagaaagaa gaattggcta gaatatttga taatgcatcc actatctctt      720
caaaatataa gttattggtt gatgaaatat caaacaaggc ctatggtaca ttggaaggtc      780
cagctgctga taattttgac catttccgta atatatggaa gtctattgta cttaaagata      840
tgtttatata ttgtgactta ttattacaac atttaatcta taaattctat tatgacaata      900
ccattaatga tatcaagaaa aattttgacg aatccaaatc taaagcttta gttttgaggg      960
ataagatcac taaaaaggac gtgtatgtaa atgatcacta aacgggctcc acatatctat     1020
tactggggta gatattataa gttatggata agtaaattta tggcgataga ttccaacaaa     1080
tttgtggtta gtagcgacaa tgattatggc tagtgtgtgg agtacttatg agtgaatgat     1140
tgtagtggtg ctagcagtg agtatagtta ggtaatccct acacacccat ttaaataaga     1200
tgcaaatagc atttaaattg acatatattg tgtgtatgtc cacgtttatt gcgtttccat     1260
gacgtatctg ctgaggtgtg tcttgtgtat ctaagtacca gacacagcac ttaaattgtt     1320
atgggcatga cgatggatgt taaaggttta tacactccaa aggcacgttc ttctgctagg     1380
gaaacgaggg acaagttcga ttttgctata caaagcaagt ttcactccct ggactttaca     1440
ctggatgact ttgatatagg tgcattcgtg gtaaacctca aaatttactc agggcgatgg     1500
tgcccatggg caggtttttt tggcaaggga acgacgtacc ggttttattt gcgtgttaaa     1560
atgcattttt aaatcacaac ttgtgaagta attgcctaat aatcacacag aaatggacag     1620
gaagctattt tcaagcggga aatcgaattg cacgggcatc tgagacatcc aaacatagca     1680
tggtatgtac atatttatcc agcttgtata cctggttcac tagccctact atgatattca     1740
tagtgatgga atattgttac aatggcgatc tatttaatta tatgtcaaaa catggccaac     1800
tgagtgaaga aagggtatca gagtatacag atatttacat agaattttgt tcgaagtcat     1860
ttgggccatt agaagctgcc acgacaaacg catagcgcac ttggatatta aaccagtaag     1920
gttctatgtt acagaggaga atatattatt ggaccatgaa aacaggtgta aattggcgga     1980
ctttggattc tctgcacaca tagggcattt gtaccgctca aacggagtgc tcatcatcgt     2040
ggcacgcatg gtaacacgca attwatggca gattattggt ctccggagca gtgtgccaaa     2100
catttgggtc tggggttgaa gtatggggag tatgatgaac aaagcgacat atgggcgttg     2160
ggcatattgg cagttgaatt gtttattgga taccctccat ttggatctac tactgaagag     2220
cccaacaatg tgattatgaa cagaatccac acttaccact ggaccaaaca tgtactttta     2280
```

```
tctattacgc agattttga aatgaagagg gaaaaacatc tactctcgtc gacgcctg          2338
```

<210> 14
<211> 729
<212> DNA
<213> Babesia microti

<400> 14

```
ttgcctggac cttctctgtc ctagaattac aggaattctc ttatactgtt taatacaaaa        60
cacttggaag aatttcacca attgcatatg aaacatggaa tccaagagac caaaatttaa       120
aaccttgaaa tagaagcact tatgccaata ttggaaatta cttagtgaag tgatccaaag       180
tactgatttg gtcagaagac atcaccaggg cactagctgg cctagtgacc tgagtatttg       240
tgaaagctga ttttaatgtt gagaacatga aggaagcagt attgaggtaa tggaatcttg       300
tagattatag tagaagccaa ctgagaccaa gaaatgtacg gtaggaatga aataaggtct       360
tgggtggtca ttgcatggag ctgtgaaagt gaagcgttgt tggggtatag attcgcaagt       420
cttggggcat gactatgtgg ggttaccaag gttaggttaa ctgaggtgga aagatccact       480
ctaaatgggg gagttaccat ttcatgtgct gggatcccag agatgtcaaa ggagaaaata       540
agctattgaa taagagcatc tatatccctt gcttcttggc tatggatgtt atgtgactag       600
tcatctctta gtcttacctt caccattata acaagatttt ctagaacttt gggttaaatt       660
aaatccttta ttcctcacgt tgctgtctta gttactttcc tgttgctttg ataaagcatt       720
ctggccaag                                                               729
```

<210> 15
<211> 1448
<212> DNA
<213> Babesia microti

<400> 15

```
acatgttgac ttttggaaat atacgttttc ataatataaa tctcccacca ttttcattgg        60
gcataattca ctcgattacg gtagaaaagg cgattaactc tgaagatttt gacggaatac       120
aaacactttt acaagtgtct atcattgcta gttacggtcc atctggcgat tacagtagtt       180
ttgtgttcac tccagttgta acagcagaca ccaacgtttt ttacaaatta gagacggatt       240
tcaaacttga tgttgatgtt attactaaga catcactaga attgcccaca agtgttcctg       300
gctttcacta caccgaaact atttaccaag gcacagaatt gtcaaaattt agcaagcctc       360
agtgcaaact taacgatcct cctattacaa caggatcggg gttgcaaata atacatgatg       420
gtttgaataa ttcgacaatt ataaccaaca aagaagttaa tgtggatgga acagatttag       480
ttttttttga attgctccct ccatcggatg gcattccac cttgcgatca aaattatttc        540
ccgtcctgaa atcaattcca atgatatcta ccggggttaa tgaattactg ttggaagtac       600
tcgagaaccc ctctttccct agtgcaatta gcaattacac cggactgaca ggccgactta       660
acaaattact tacagtttta gacggtattg ttgatagcgc cattagtgtc aagactacag       720
aaactgtccc tgacgacgca gaaacttcta tttcttcatt gaaatcattg ataaaggcaa       780
tacgagataa tattactacc actcgaaacg aagttaccaa agatgatgtt tatgcattga       840
agaaggccct cacttgtcta acgacacacc taatatatca ttcaaaagta gatggtatat       900
cattcgacat gctgggaaca caaaaaaata aatctagccc actaggcaag atcggaacgt       960
ctatggacga tattatagcc atgttttcga atcccaatat gtatcttgtg aaggtggcgt      1020
acttgcaagc cattgaacac attttttctca tatcaaccaa atacaatgat atatttgatt      1080
acaccattga ttttagtaag cgtgaagcta ctgattctgg atcatttacc gatatattgc      1140
tcggaaacaa ggtgaaggaa tctttgtcat ttattgaggg tttgatttct gacataaaat      1200
ctcactcatt gaaagctggg gttacaggag gtatatcaag ttcatcatta tttgatgaaa      1260
tcttcgacga gttaaatttg gatcaagcaa caattagaac ccttgttgca ccattagatt      1320
ggccacttat ctcagacaaa agcctccacc cttcactgaa gatggttgtg gtcctgccag      1380
gattttttcat agttccttaa taacatgaca tttcatagtc ccttcagtcc tgatgacaag      1440
acggtgaa                                                                1448
```

```
<210> 16
<211> 1350
<212> DNA
<213> Babesia microti

<400> 16
gcctaagccc aaatgggatt taagcaggag gggataaaac agatgacctc caccatgccc      60
tactaactct aagctaagga aatccagcct gctggctatt tacctgcttt cctcgaagtg     120
aaaggccaga gtcacccccca atctttccca aaagattgaa gtcactctct ccatgccggc     180
aaaggtagat ggtgcgaggc tggacatgga tattcataag gtagtagaca attttactct     240
ggatgtagtc ctggactctg ttgaccagaa atctctggcc tacattaatc accttgatga     300
agacagatcc ctaggacaga gtagaaagag caattttatg gtcagaaaat ctgaaactag     360
gagtgtggca agcaaggggg caaggctatc agcacctagt gacaatccca gcacttagaa     420
ggcttagctg gaaggggctt aggtttgacc ctgactcaag acaaatgaac atatgaaaag     480
tatggggaga atgatctgtg tattgactgg tagggcctca tcagctattc cttctctccc     540
tgtcactgcc atctcgtgcc gaattcggca cgagctcgtg ccgaaaccct aaaccctaaa     600
cccctaaacc ctaaacccta aaccctaaac cctaaaccct aaaccctaaa ccctaaaccc     660
taaacccta aaccctaaa ccctaaaccc taaaccctaa accctaaacc ctaaaccta     720
aaccctaacc ctaaccctaa ccctaaccct aacctagcct tcattgacgt ctatccccaa     780
tcttagaaga atcttcaaat cgattctaga ataactggaa acaattatca gaaattgtat     840
aactgcttat tagcttatta gcttattagt taggatgtat gcacattgat gacaactaga     900
tgcagcacca caatcactac cacgtaccaa tcatatacca ataatgtact aataatgtac     960
caataactat ggtttataaa gatggtgtca tttaaatcaa tattagttcc ttatattaca    1020
ctctttttaa tgagcggtgc tgtctttgca agtgataccg atcccgaagc tggtgggcct    1080
agtgaagctg gtgggcctag tggaactgtt gggcccagtg aagctggtgg gcctagtgaa    1140
gctggtgggc ctagtggaac tggttggcct agtgaagctg gtgggcctag tgaagctggt    1200
gggcctagtg aagctggtgg gcctagtgaa gctggtgggc ctagtggaac tggttggcct    1260
agtggaactg gttggcctag tgaagctggt tggtctagtg aacgatttgg atatcagctt    1320
cttccgtatt ctagaagaat agttatattt                                    1350

<210> 17
<211> 1820
<212> DNA
<213> Babesia microti

<400> 17
ggaaagcctt aaacatgcat gggaataatg aaatagtaaa aattgcagcc atggcaatgt      60
aataatgagt ggatgtttca gtcttgaggc tctttaacaa gagtgttgtc ttgtagtcaa     120
agacaaagtg attcgtcatg ccgcattcgc agccaccatc atcatcaggc gacgacgggt     180
ctctttcatt atcctcgggc ttattattgc aaccatgaca cccttcttta caaaagtctt     240
ttttttttcag cggtgtctga gtattatgcg attttattcc agccttccca cttttattct     300
tattgagatt gccatgctct tcttcatgag cgtcacttgt ttcctgcggt gtctgagtat     360
catacgattt tattccagca tttccacttt tattcttatt gattttgtca tgcccttctt     420
cacactcttc acatatttct tgcgttgtct gagtatcatg cgattttctt tcagccttct     480
cactttattt cgtattgatt ttgtcatgcc cttcttcatg agcgtcactt gtttcctgcg     540
gtgtctgagt atcatacgat tttattccag catttccact tttattctta ttgattttgt     600
catgcccttc ttcacactct tcacatattt cttgcgttgt ctgagtatca tacgatttta     660
ttccagcatt tccactttta ttcttattga ttttgtcatg cccttcttca cactcttcac     720
atatttcttg cgttgtctga gtatcatgcg attttctttc agccttctca cttttattcg     780
tattgggttt gccatgccct tctttacgct cttcatatat ttcttgtgcc gttagtctca     840
gtaagttgtc aagctcttca tatatttctt gcggtgtctg agtatcatgc gattttcttt     900
cagtcttctc acttttattc gtattgagtt tgccattccc ttcttcatga tcgtcacttg     960
tttcttgcgc cgttagtctc attaagttgt caagctcttc atcatctatt gaatggtatg    1020
gagctgtatc ttcccagggt ggttgaatta tgtcattctc gccgatttta aatgatggtt    1080
```

```
cttcatcatt tatatcagat gccatgtctg agtggtgccc taatctagag aattggtgtg    1140
gtaccccctc atccaaactt tcgggcaaca ccctggtatc agaatccatt tgttcgagcg    1200
gctcactatc gcaagcgtct tgtggattga tgttatcatg ttcctggatt caacatgta     1260
cagattctga atccgcattg ggttctggaa tatagttggt aactacattt gtttctagag    1320
aagtatcatt cttatattaa ttcatctaag atctgtgctt ctttgtttct acacatacag    1380
ggtgtctctt ttcccaacat aatatctgta aattcttccc agaagcagaa ccttgttggt    1440
accagacagc atcgggtctc tgtgagtttc tattcaggca acaggtgtat tctgtttgcc    1500
agtccaagtg catcctgtat tctagtactg cttactacc ccaagcaaat cactggcatc     1560
aacatctagc actgagtgaa gcatgatctc ttctacaagg tgttttccca ttgtgttgta    1620
agcccgtata caaggctgtt cccactcaac aatgaagaga cctcttagca tgaatggcca    1680
gatgtctgtt ctttaaatta aatcaatatg ttttgctcaa tatgtcagac ttgtttgtgg    1740
tggagccaaa attggaggtc ccatcgagat ttggagaaac ttgaaatgaa tgcaaaagat    1800
ggtgggggct actcgtgccg                                                1820
```

        <210> 18
        <211> 263
        <212> PRT
        <213> Babesia microti

        <400> 18
```
Leu Phe Leu Met Ser Gly Ala Val Phe Ala Ser Asp Thr Asp Pro Glu
1               5                   10                  15
Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Val Gly Pro
            20                  25                  30
Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly
        35                  40                  45
Trp Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu
    50                  55                  60
Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro
65                  70                  75                  80
Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp Ser Ser Glu Arg Phe
                85                  90                  95
Gly Tyr Gln Leu Leu Pro Tyr Ser Arg Arg Ile Val Ile Phe Asn Glu
            100                 105                 110
Val Cys Leu Ser Tyr Ile Tyr Lys His Ser Val Met Ile Leu Glu Arg
        115                 120                 125
Asp Arg Val Asn Asp Gly His Lys Asp Tyr Ile Glu Glu Lys Thr Lys
    130                 135                 140
Glu Lys Asn Lys Leu Lys Lys Glu Leu Glu Lys Cys Phe Pro Glu Gln
145                 150                 155                 160
Tyr Ser Leu Met Lys Lys Glu Glu Leu Ala Arg Ile Phe Asp Asn Ala
                165                 170                 175
Ser Thr Ile Ser Ser Lys Tyr Lys Leu Leu Val Asp Glu Ile Ser Asn
                180                 185                 190
Lys Ala Tyr Gly Thr Leu Glu Gly Pro Ala Ala Asp Asn Phe Asp His
            195                 200                 205
Phe Arg Asn Ile Trp Lys Ser Ile Val Leu Lys Asp Met Phe Ile Tyr
        210                 215                 220
Cys Asp Leu Leu Leu Gln His Leu Ile Tyr Lys Phe Tyr Tyr Asp Asn
225                 230                 235                 240
Thr Val Asn Asp Ile Lys Lys Asn Phe Asp Glu Ser Lys Ser Lys Ala
                245                 250                 255
Leu Val Leu Arg Asp Lys Ile
            260
```

```
<210> 19
<211> 310
<212> PRT
<213> Babesia microti

<400> 19
Met Ser Gly Ala Val Phe Ala Ser Asp Thr Asp Pro Glu Ala Gly Gly
1               5                   10                  15
Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Val Gly Pro Ser Glu Ala
            20                  25                  30
Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Val Gly Pro Ser
        35                  40                  45
Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp
    50                  55                  60
Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr
65                  70                  75                  80
Val Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser
                85                  90                  95
Gly Thr Gly Trp Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly
            100                 105                 110
Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr
        115                 120                 125
Gly Trp Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp Ser Ser
    130                 135                 140
Glu Arg Phe Gly Tyr Gln Leu Leu Pro Tyr Ser Arg Arg Ile Val Ile
145                 150                 155                 160
Phe Asn Glu Val Cys Leu Ser Tyr Ile Tyr Lys His Ser Val Met Ile
                165                 170                 175
Leu Glu Arg Asp Arg Val Asn Asp Gly His Lys Asp Tyr Ile Glu Glu
            180                 185                 190
Lys Thr Lys Glu Lys Asn Lys Leu Lys Lys Glu Leu Glu Lys Cys Phe
        195                 200                 205
Pro Glu Gln Tyr Ser Leu Met Lys Lys Glu Glu Leu Ala Arg Ile Phe
    210                 215                 220
Asp Asn Ala Ser Thr Ile Ser Ser Lys Tyr Lys Leu Leu Val Asp Glu
225                 230                 235                 240
Ile Ser Asn Lys Ala Tyr Gly Thr Leu Glu Gly Pro Ala Ala Asp Asn
                245                 250                 255
Phe Asp His Phe Arg Asn Ile Trp Lys Ser Ile Val Leu Lys Asp Met
            260                 265                 270
Phe Ile Tyr Cys Asp Leu Leu Leu Gln His Leu Ile Tyr Lys Phe Tyr
        275                 280                 285
Tyr Asp Asn Thr Val Asn Asp Ile Lys Lys Asn Phe Asp Glu Ser Trp
    290                 295                 300
Thr Gln Thr Leu Lys Glu
305                 310

<210> 20
<211> 367
<212> PRT
<213> Babesia microti

<400> 20
```

Leu Trp Phe Ile Lys Met Val Ser Phe Lys Ser Ile Leu Val Pro Tyr
1   5   10   15
Ile Thr Leu Phe Leu Met Ser Gly Ala Val Phe Ala Ser Asp Thr Asp
        20   25   30
Pro Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Val
        35   40   45
Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly
    50   55   60
Thr Gly Trp Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro
65   70   75   80
Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly
                85   90   95
Trp Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp Ser Ser Glu
            100   105   110
Arg Phe Gly Tyr Gln Leu Leu Pro Tyr Ser Arg Arg Ile Val Ile Phe
            115   120   125
Asn Glu Val Cys Leu Ser Tyr Ile Tyr Lys His Ser Val Met Ile Leu
    130   135   140
Glu Arg Asp Arg Val Asn Asp Gly His Lys Asp Tyr Ile Glu Glu Lys
145   150   155   160
Thr Lys Glu Lys Asn Lys Leu Lys Lys Glu Leu Glu Lys Cys Phe Pro
                165   170   175
Glu Gln Tyr Ser Leu Met Lys Lys Glu Glu Leu Ala Arg Ile Phe Asp
            180   185   190
Asn Ala Ser Thr Ile Ser Ser Lys Tyr Lys Leu Leu Val Asp Glu Ile
            195   200   205
Ser Asn Lys Ala Tyr Gly Thr Leu Glu Gly Pro Ala Ala Asp Asn Phe
    210   215   220
Asp His Phe Arg Asn Ile Trp Lys Ser Ile Val Leu Lys Asp Met Phe
225   230   235   240
Ile Tyr Cys Asp Leu Leu Leu Gln His Leu Ile Tyr Lys Phe Tyr Tyr
                245   250   255
Asp Asn Thr Val Asn Asp Ile Lys Lys Asn Phe Asp Glu Ser Lys Ser
            260   265   270
Lys Ala Leu Val Leu Arg Asp Lys Ile Thr Lys Lys Asp Gly Asp Tyr
    275   280   285
Asn Thr His Phe Glu Asp Met Ile Lys Glu Leu Asn Ser Ala Ala Glu
    290   295   300
Glu Phe Asn Lys Ile Val Asp Ile Met Ile Ser Asn Ile Gly Asp Tyr
305   310   315   320
Asp Glu Tyr Asp Ser Ile Ala Ser Phe Lys Pro Phe Leu Ser Met Ile
            325   330   335
Thr Glu Ile Thr Lys Ile Thr Lys Val Ser Asn Val Ile Ile Pro Gly
            340   345   350
Ile Lys Ala Leu Thr Leu Thr Val Phe Leu Ile Phe Ile Thr Lys
    355   360   365

    <210> 21
    <211> 492
    <212> PRT
    <213> Babesia microti

    <400> 21
Met Tyr Lys Ile Lys Ile Ser Asp Tyr Ile Ile Glu Phe Asp Asp Asn

```
       1                   5                         10                        15
      Ala Lys Leu Pro Thr Asp Asn Val Ile Gly Ile Ser Ile Tyr Thr Cys
                   20                      25                      30
      Glu His Asn Asn Pro Val Leu Ile Glu Phe Tyr Val Ser Lys Lys Gly
               35                      40                      45
      Ser Ile Cys Tyr Tyr Phe Tyr Ser Met Asn Asn Asp Thr Asn Lys Trp
           50                      55                      60
      Asn Asn His Lys Ile Lys Tyr Asp Lys Arg Phe Asn Glu His Thr Asp
      65                      70                      75                      80
      Met Asn Gly Ile His Tyr Tyr Tyr Ile Asp Gly Ser Leu Leu Ala Ser
                           85                      90                      95
      Gly Glu Val Thr Ser Asn Phe Arg Tyr Ile Ser Lys Glu Tyr Glu Tyr
                       100                     105                     110
      Glu His Thr Glu Leu Ala Lys Glu His Cys Lys Lys Glu Lys Cys Val
                   115                     120                     125
      Asn Val Asp Asn Ile Glu Asp Asn Asn Leu Lys Ile Tyr Ala Lys Gln
               130                     135                     140
      Phe Lys Ser Val Val Thr Thr Pro Ala Asp Val Ala Gly Val Ser Asp
      145                     150                     155                     160
      Gly Phe Phe Ile Arg Gly Gln Asn Leu Gly Ala Val Gly Ser Val Asn
                       165                     170                     175
      Glu Gln Pro Asn Thr Val Gly Met Ser Leu Glu Gln Phe Ile Lys Asn
                   180                     185                     190
      Glu Leu Tyr Ser Phe Ser Asn Glu Ile Tyr His Thr Ile Ser Ser Gln
                   195                     200                     205
      Ile Ser Asn Ser Phe Leu Ile Met Met Ser Asp Ala Ile Val Lys His
           210                     215                     220
      Asp Asn Tyr Ile Leu Lys Lys Glu Gly Glu Gly Cys Glu Gln Ile Tyr
      225                     230                     235                     240
      Asn Tyr Glu Glu Phe Ile Glu Lys Leu Arg Gly Ala Arg Ser Glu Gly
                       245                     250                     255
      Asn Asn Met Phe Gln Glu Ala Leu Ile Arg Phe Arg Asn Ala Ser Ser
                   260                     265                     270
      Glu Glu Met Val Asn Ala Ala Ser Tyr Leu Ser Ala Ala Leu Phe Arg
                   275                     280                     285
      Tyr Lys Glu Phe Asp Asp Glu Leu Phe Lys Lys Ala Asn Asp Asn Phe
               290                     295                     300
      Gly Arg Asp Asp Gly Tyr Asp Phe Asp Tyr Ile Asn Thr Lys Lys Glu
      305                     310                     315                     320
      Leu Val Ile Leu Ala Ser Val Leu Asp Gly Leu Asp Leu Ile Met Glu
                   325                     330                     335
      Arg Leu Ile Glu Asn Phe Ser Asp Val Asn Asn Thr Asp Asp Ile Lys
               340                     345                     350
      Lys Ala Phe Asp Glu Cys Lys Ser Asn Ala Ile Ile Leu Lys Lys Lys
               355                     360                     365
      Ile Leu Asp Asn Asp Glu Asp Tyr Lys Ile Asn Phe Arg Glu Met Val
           370                     375                     380
      Asn Glu Val Thr Cys Ala Asn Thr Lys Phe Glu Ala Leu Asn Asp Leu
      385                     390                     395                     400
      Ile Ile Ser Asp Cys Glu Lys Lys Gly Ile Lys Ile Asn Arg Asp Val
                       405                     410                     415
      Ile Ser Ser Tyr Lys Leu Leu Leu Ser Thr Ile Thr Tyr Ile Val Gly
               420                     425                     430
      Ala Gly Val Glu Ala Val Thr Val Ser Val Ser Ala Thr Ser Asn Gly
```

```
            435                  440                  445
Thr Glu Ser Gly Gly Ala Gly Ser Gly Thr Gly Thr Ser Val Ser Ala
        450                  455                  460
Thr Ser Thr Leu Thr Gly Asn Gly Gly Thr Glu Ser Gly Gly Thr Ala
465                  470                  475                  480
Gly Thr Thr Thr Ser Ser Gly Thr Trp Phe Gly Lys
                    485                  490
```

```
        <210> 22
        <211> 138
        <212> PRT
        <213> Babesia microti


        <400> 22
Ser Leu Gly Gln Pro Ala Ser Leu Gly Gln Pro Ala Ser Leu Gly Gln
 1               5                   10                  15
Pro Ala Ser Leu Gly Gln Pro Ala Ser Leu Gly Gln Pro Ala Ser Leu
            20                  25                  30
Gly Gln Pro Val Pro Leu Gly Pro Pro Ala Ser Leu Gly Pro Pro Ala
        35                  40                  45
Ser Leu Gly Pro Pro Ala Ser Leu Gly Gln Pro Val Pro Leu Gly Pro
    50                  55                  60
Pro Ala Ser Leu Gly Pro Pro Ala Ser Leu Gly Pro Pro Ala Ser Leu
65                  70                  75                  80
Gly Pro Pro Ala Ser Leu Gly Pro Pro Ala Ser Leu Gly Pro Pro Ala
                85                  90                  95
Ser Leu Gly Pro Pro Ala Ser Leu Gly Pro Pro Ala Ser Leu Gly Pro
            100                 105                 110
Thr Val Pro Leu Gly Pro Pro Ala Ser Arg Ser Val Ser Pro Ala Lys
        115                 120                 125
Thr Ala Pro Leu Ile Lys Lys Ser Val Ile
    130                 135
```

```
        <210> 23
        <211> 303
        <212> PRT
        <213> Babesia microti


        <400> 23
Leu Trp Phe Ile Lys Met Val Ser Phe Lys Ser Ile Leu Val Pro Tyr
 1               5                   10                  15
Ile Thr Leu Phe Leu Met Ser Gly Ala Val Phe Ala Gly Asp Thr Asp
            20                  25                  30
Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly Pro Ser Glu Ala Gly
        35                  40                  45
Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu
    50                  55                  60
Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro
65                  70                  75                  80
Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly
                85                  90                  95
Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu
            100                 105                 110
Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro
```

```
          115                      120                      125
Ser Glu Arg Phe Gly Tyr Gln Leu Leu Trp Tyr Ser Arg Arg Ile Val
      130                      135                  140
Ile Phe Asn Glu Ile Tyr Leu Ser His Ile Tyr Glu His Ser Val Met
145                      150                  155                  160
Ile Leu Glu Arg Asp Arg Val Asn Asp Gly His Lys Asp Tyr Ile Glu
                  165                      170                  175
Glu Lys Thr Lys Glu Lys Asn Lys Leu Lys Lys Glu Leu Glu Lys Cys
              180                      185                  190
Phe Pro Glu Gln Tyr Ser Leu Met Lys Lys Glu Glu Leu Ala Arg Ile
          195                      200                  205
Ile Asp Asn Ala Ser Thr Ile Ser Ser Lys Tyr Lys Leu Leu Val Asp
      210                      215                  220
Glu Ile Ser Asn Lys Ala Tyr Gly Thr Leu Glu Gly Pro Ala Ala Asp
225                      230                  235                  240
Asp Phe Asp His Phe Arg Asn Ile Trp Lys Ser Ile Val Pro Lys Asn
                  245                      250                  255
Met Phe Leu Tyr Cys Asp Leu Leu Leu Lys His Leu Ile Arg Lys Phe
              260                      265                  270
Tyr Cys Asp Asn Thr Ile Asn Asp Ile Lys Lys Asn Phe Asp Asp Ile
          275                      280                  285
Glu Lys Leu Gly Cys Phe Gln Ala Arg Ser Phe Leu Pro Val Asn
      290                      295                  300
```

```
          <210> 24
          <211> 592
          <212> PRT
          <213> Babesia microti

          <400> 24
Met Met Lys Phe Asn Ile Asp Lys Ile Ile Leu Ile Asn Leu Ile Val
1                   5                   10                  15
Leu Leu Asn Arg Asn Val Val Tyr Cys Val Asp Thr Asn Asn Ser Ser
              20                  25                  30
Leu Ile Glu Ser Gln Pro Val Thr Thr Asn Ile Asp Thr Asp Asn Thr
          35                  40                  45
Ile Thr Thr Asn Lys Tyr Thr Gly Thr Ile Ile Asn Ala Asn Ile Val
      50                  55                  60
Glu Tyr Arg Glu Phe Glu Asp Glu Pro Leu Thr Ile Gly Phe Arg Tyr
65                  70                  75                  80
Thr Ile Asp Lys Ser Gln Gln Asn Lys Leu Ser His Pro Asn Lys Ile
              85                  90                  95
Asp Lys Ile Lys Phe Ser Asp Tyr Ile Ile Glu Phe Asp Asp Asn Ala
          100                 105                 110
Lys Leu Pro Thr Asp Asn Val Ile Cys Ile Ser Ile Tyr Thr Cys Lys
          115                 120                 125
His Asn Asn Pro Val Leu Ile Arg Phe Ser Cys Ser Ile Glu Lys Tyr
      130                 135                 140
Tyr Tyr His Tyr Phe Tyr Ser Met Asn Asn Asp Thr Asn Lys Trp Asn
145                 150                 155                 160
Asn His Lys Leu Lys Tyr Asp Lys Thr Tyr Asn Glu Tyr Thr Asp Asn
              165                 170                 175
Asn Gly Val Asn Tyr Tyr Lys Ile Tyr Tyr Ser Asp Lys Gln Asn Ser
          180                 185                 190
```

```
Pro Thr Asn Gly Asn Glu Tyr Glu Asp Val Ala Leu Ala Arg Ile His
        195                 200                 205
Cys Asn Glu Glu Arg Cys Ala Asn Val Lys Val Asp Lys Ile Lys Tyr
    210                 215                 220
Lys Asn Leu Glu Ile Tyr Val Lys Gln Leu Gly Thr Ile Ile Asn Ala
225                 230                 235                 240
Asn Ile Val Glu Tyr Leu Val Phe Glu Asp Glu Pro Leu Thr Ile Gly
                245                 250                 255
Phe Arg Tyr Thr Ile Asp Lys Ser Gln Gln Asn Glu Leu Ser His Pro
            260                 265                 270
Asn Lys Ile Tyr Lys Ile Lys Phe Ser Asp Tyr Ile Ile Glu Phe Asp
        275                 280                 285
Asp Asp Ala Lys Leu Thr Thr Ile Gly Thr Val Glu Asp Ile Thr Ile
    290                 295                 300
Tyr Thr Cys Lys His Asn Asn Pro Val Leu Ile Arg Phe Ser Cys Ser
305                 310                 315                 320
Ile Glu Lys Tyr Tyr Tyr Tyr Phe Tyr Ser Met Asn Asn Asn Thr
            325                 330                 335
Asn Lys Trp Asn Asn His Asn Leu Lys Tyr Asp Asn Arg Phe Lys Glu
        340                 345                 350
His Ser Asp Lys Asn Gly Ile Asn Tyr Tyr Glu Ile Ser Ala Phe Lys
        355                 360                 365
Trp Ser Phe Ser Cys Phe Phe Val Asn Lys Tyr Glu His Lys Glu Leu
    370                 375                 380
Ala Arg Ile His Cys Asn Glu Glu Arg Cys Ala Asn Val Lys Val Asp
385                 390                 395                 400
Lys Ile Lys Tyr Lys Asn Leu Glu Ile Tyr Val Lys Gln Leu Gly Thr
            405                 410                 415
Ile Ile Asn Ala Asn Ile Val Glu Tyr Leu Val Phe Glu Asp Glu Pro
        420                 425                 430
Leu Thr Ile Gly Phe Arg Tyr Thr Ile Asp Lys Ser Gln Gln Asn Glu
        435                 440                 445
Leu Ser His Pro Asn Lys Ile Tyr Lys Ile Lys Phe Ser Asp Tyr Ile
    450                 455                 460
Ile Glu Phe Asp Asp Asp Ala Lys Leu Thr Thr Ile Gly Thr Val Glu
465                 470                 475                 480
Asp Ile Thr Ile Tyr Thr Cys Lys His Asn Asn Pro Val Leu Ile Arg
            485                 490                 495
Phe Ser Cys Ser Ile Glu Lys Tyr Tyr Tyr Tyr Tyr Phe Tyr Ser Met
        500                 505                 510
Asn Asn Asn Thr Asn Lys Trp Asn Asn His Asn Leu Lys Tyr Asp Asn
        515                 520                 525
Arg Phe Lys Glu His Ser Asp Lys Asn Gly Ile Asn Tyr Tyr Glu Ile
    530                 535                 540
Ser Ala Phe Lys Trp Ser Phe Ser Cys Phe Phe Val Asn Lys Tyr Glu
545                 550                 555                 560
His Lys Glu Leu Ala Arg Ile His Cys Asn Glu Glu Lys Cys Val Asn
            565                 570                 575
Val Lys Val Asp Asn Ile Gly Asn Lys Asn Leu Glu Ile Tyr Val Lys
        580                 585                 590
```

```
<210> 25
<211> 463
<212> PRT
```

<213> Babesia microti

<400> 25

Ile	Ile	Met	Lys	Ile	Asn	Ile	Asp	Asn	Ile	Ile	Leu	Ile	Asn	Leu	Ile
1				5					10					15	

Ile Ile Met Lys Ile Asn Ile Asp Asn Ile Ile Leu Ile Asn Leu Ile
1   5   10   15
Ile Leu Leu Asn Arg Asn Val Val Tyr Cys Val Asp Lys Asn Asp Val
          20   25   30
Ser Leu Trp Lys Ser Lys Pro Ile Thr Thr Val Ser Thr Thr Asn Asp
      35   40   45
Thr Ile Thr Asn Lys Tyr Thr Ser Thr Val Ile Asn Ala Asn Phe Ala
   50   55   60
Ser Tyr Arg Glu Phe Glu Asp Arg Glu Pro Leu Thr Ile Gly Phe Glu
65   70   75   80
Tyr Met Ile Asp Lys Ser Gln Gln Asp Lys Leu Ser His Pro Asn Lys
          85   90   95
Ile Asp Lys Ile Lys Ile Ser Asp Tyr Ile Ile Glu Phe Asp Asp Asn
          100   105   110
Ala Lys Leu Pro Thr Gly Ser Val Asn Asp Ile Ser Ile Ile Thr Cys
      115   120   125
Lys His Asn Asn Pro Val Leu Ile Arg Phe Ser Cys Leu Ile Glu Gly
      130   135   140
Ser Ile Cys Tyr Tyr Phe Tyr Leu Leu Asn Asn Asp Thr Asn Lys Trp
145   150   155   160
Asn Asn His Lys Leu Lys Tyr Asp Lys Thr Tyr Asn Glu His Thr Asp
          165   170   175
Asn Asn Gly Ile Asn Tyr Tyr Lys Ile Asp Tyr Ser Glu Ser Thr Glu
          180   185   190
Pro Thr Thr Glu Ser Thr Thr Cys Phe Cys Phe Arg Lys Lys Asn His
      195   200   205
Lys Ser Glu Arg Lys Glu Leu Glu Asn Tyr Lys Tyr Glu Gly Thr Glu
      210   215   220
Leu Ala Arg Ile His Cys Asn Lys Gly Lys Cys Val Lys Leu Gly Asp
225   230   235   240
Ile Lys Ile Lys Asp Lys Asn Leu Glu Ile Tyr Val Lys Gln Leu Met
          245   250   255
Ser Val Asn Thr Pro Val Asn Phe Asp Asn Pro Thr Ser Ile Asn Leu
          260   265   270
Pro Thr Val Ser Thr Thr Asn Asp Thr Ile Thr Asn Lys Tyr Thr Gly
      275   280   285
Thr Ile Ile Asn Ala Asn Ile Val Glu Tyr Cys Glu Phe Glu Asp Glu
      290   295   300
Pro Leu Thr Ile Gly Phe Arg Tyr Thr Ile Asp Lys Ser Gln Gln Asn
305   310   315   320
Lys Leu Ser His Pro Asn Lys Ile Asp Lys Ile Lys Phe Phe Asp Tyr
          325   330   335
Ile Ile Glu Phe Asp Asp Asp Val Lys Leu Pro Thr Ile Gly Thr Val
          340   345   350
Asn Ile Ile Tyr Ile Tyr Thr Cys Glu His Asn Asn Pro Val Leu Val
      355   360   365
Glu Phe Ile Val Ser Ile Glu Glu Ser Tyr Tyr Phe Tyr Phe Tyr Ser
      370   375   380
Met Asn Asn Asn Thr Asn Lys Trp Asn Asn His Lys Leu Lys Tyr Asp
385   390   395   400
Lys Arg Phe Lys Lys Tyr Thr Lys Asn Gly Ile Asn Cys Tyr Glu Tyr

```
                    405                     410                     415
Val Leu Arg Lys Cys Ser Ser Tyr Thr Arg Lys Asn Glu Tyr Glu His
            420                     425                     430
Lys Glu Leu Ala Arg Ile His Cys Asn Glu Glu Lys Cys Val Asn Val
        435                     440                     445
Lys Val Asp Asn Ile Glu Lys Lys Asn Leu Glu Ile Tyr Val Lys
    450                     455                     460


        <210> 26
        <211> 297
        <212> PRT
        <213> Babesia microti


        <400> 26
Arg Ala Ala Arg Ala Asp Tyr Tyr Lys Tyr Leu Val Asp Glu Tyr Ser
 1               5                   10                      15
Ser Pro Arg Glu Glu Arg Glu Leu Ala Arg Val His Cys Asn Glu Glu
            20                      25                      30
Lys Cys Val Lys Leu Asp Gly Ile Lys Phe Lys Asp Lys Asn Leu Glu
        35                      40                      45
Ile Tyr Val Lys Gln Leu Met Ser Val Asn Thr Pro Val Val Phe Asp
    50                      55                      60
Asn Asn Thr Leu Ile Asn Pro Thr Ser Ser Ser Gly Ala Thr Asp Asp
65                      70                      75                      80
Ile Thr Tyr Glu Leu Ser Val Glu Ser Gln Pro Val Pro Thr Asn Ile
                85                      90                      95
Asp Thr Gly Asn Asn Ile Thr Thr Asn Thr Ser Asn Asn Asn Leu Ile
            100                     105                     110
Lys Ala Lys Phe Leu Tyr Asn Phe Asn Leu Pro Gly Lys Pro Ser Thr
        115                     120                     125
Gly Leu Phe Glu Tyr Thr Ile Asp Lys Ser Glu Gln Asn Lys Leu Ser
        130                     135                     140
His Pro Asn Lys Ile Asp Lys Ile Lys Phe Ser Asp Tyr Ile Ile Glu
145                     150                     155                     160
Phe Asp Asp Asp Ala Lys Leu Pro Thr Ile Gly Thr Val Asn Ile Ile
                165                     170                     175
Ser Ile Ile Thr Cys Lys His Asn Asn Pro Val Leu Val Glu Phe Ile
            180                     185                     190
Val Ser Thr Glu Ile Tyr Cys Tyr Tyr Asn Tyr Phe Tyr Ser Met Asn
        195                     200                     205
Asn Asn Thr Asn Lys Trp Asn Asn His Lys Leu Lys Tyr Asp Lys Arg
    210                     215                     220
Tyr Lys Glu Glu Tyr Thr Asp Asp Asn Gly Ile Asn Tyr Tyr Lys Leu
225                     230                     235                     240
Asn Asp Ser Glu Pro Thr Glu Ser Thr Glu Ser Thr Thr Cys Phe Cys
                245                     250                     255
Phe Arg Lys Lys Asn His Lys Tyr Glu Asn Glu Arg Thr Ala Leu Ala
            260                     265                     270
Lys Glu His Cys Asn Glu Glu Arg Cys Val Lys Val Asp Asn Ile Lys
        275                     280                     285
Asp Asn Asn Leu Glu Ile Tyr Leu Lys
    290                     295


        <210> 27
```

```
<211> 121
<212> PRT
<213> Babesia microti

<400> 27
Leu Trp Phe Ile Lys Met Val Ser Phe Lys Ser Ile Leu Val Pro Tyr
1               5                   10                  15
Ile Thr Leu Phe Leu Met Ser Gly Ala Val Phe Ala Ser Asp Thr Asp
            20                  25                  30
Pro Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly
        35                  40                  45
Gly Pro Ser Gly Thr Val Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu
    50                  55                  60
Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Gly Pro
65                  70                  75                  80
Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly
                85                  90                  95
Trp Ser Ser Glu Arg Phe Gly Tyr Gln Leu Leu Pro Tyr Ser Arg Arg
            100                 105                 110
Ile Val Thr Phe Asn Glu Val Cys Leu
        115                 120

<210> 28
<211> 267
<212> PRT
<213> Babesia microti

<400> 28
Leu Trp Phe Ile Lys Met Val Ser Phe Lys Ser Ile Leu Val Pro Tyr
1               5                   10                  15
Ile Thr Leu Phe Leu Met Ser Gly Ala Val Phe Ala Ser Asp Thr Asp
            20                  25                  30
Pro Glu Ala Gly Gly Pro Ser Gly Thr Val Gly Pro Ser Glu Ala Gly
        35                  40                  45
Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser Glu
    50                  55                  60
Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro
65                  70                  75                  80
Ser Glu Ala Gly Trp Ser Ser Glu Arg Phe Gly Tyr Gln Leu Leu Pro
                85                  90                  95
Tyr Ser Arg Arg Ile Val Thr Phe Asn Glu Val Cys Leu Ser Tyr Ile
            100                 105                 110
Tyr Lys His Ser Val Met Ile Leu Glu Arg Asp Arg Val Asn Asp Gly
    115                 120                 125
His Lys Asp Tyr Ile Glu Glu Lys Thr Lys Glu Lys Asn Lys Leu Lys
    130                 135                 140
Lys Glu Leu Glu Lys Cys Phe Pro Glu Gln Tyr Ser Leu Met Lys Lys
145                 150                 155                 160
Glu Glu Leu Ala Arg Ile Phe Asp Asn Ala Ser Thr Ile Ser Ser Lys
                165                 170                 175
Tyr Lys Leu Leu Val Asp Glu Ile Ser Asn Lys Ala Tyr Gly Thr Leu
            180                 185                 190
Glu Gly Pro Ala Ala Asp Asn Phe Asp His Phe Arg Asn Ile Trp Lys
    195                 200                 205
```

Ser Ile Val Leu Lys Asp Met Phe Ile Tyr Cys Asp Leu Leu Leu Gln
    210   215   220
His Leu Ile Tyr Lys Phe Tyr Tyr Asp Asn Thr Ile Asn Asp Ile Lys
225   230   235   240
Lys Asn Phe Asp Glu Ser Lys Ser Lys Ala Leu Val Leu Arg Asp Lys
                245   250   255
Ile Thr Lys Lys Asp Val Tyr Val Asn Asp His
                260   265

        <210> 29
        <211> 16
        <212> PRT
        <213> Babesia microti

        <400> 29
Ala Trp Thr Phe Ser Val Leu Glu Leu Gln Glu Phe Ser Tyr Thr Val
1   5   10   15

        <210> 30
        <211> 465
        <212> PRT
        <213> Babesia microti

        <400> 30
Met Leu Thr Phe Gly Asn Ile Arg Phe His Asn Ile Asn Leu Pro Pro
1   5   10   15
Phe Ser Leu Gly Ile Ile His Ser Ile Thr Val Glu Lys Ala Ile Asn
                20   25   30
Ser Glu Asp Phe Asp Gly Ile Gln Thr Leu Leu Gln Val Ser Ile Ile
        35   40   45
Ala Ser Tyr Gly Pro Ser Gly Asp Tyr Ser Ser Phe Val Phe Thr Pro
    50   55   60
Val Val Thr Ala Asp Thr Asn Val Phe Tyr Lys Leu Glu Thr Asp Phe
65   70   75   80
Lys Leu Asp Val Asp Val Ile Thr Lys Thr Ser Leu Glu Leu Pro Thr
                85   90   95
Ser Val Pro Gly Phe His Tyr Thr Glu Thr Ile Tyr Gln Gly Thr Glu
                100   105   110
Leu Ser Lys Phe Ser Lys Pro Gln Cys Lys Leu Asn Asp Pro Pro Ile
        115   120   125
Thr Thr Gly Ser Gly Leu Gln Ile Ile His Asp Gly Leu Asn Asn Ser
    130   135   140
Thr Ile Ile Thr Asn Lys Glu Val Asn Val Asp Gly Thr Asp Leu Val
145   150   155   160
Phe Phe Glu Leu Leu Pro Pro Ser Asp Gly Ile Pro Thr Leu Arg Ser
                165   170   175
Lys Leu Phe Pro Val Leu Lys Ser Ile Pro Met Ile Ser Thr Gly Val
                180   185   190
Asn Glu Leu Leu Leu Glu Val Leu Glu Asn Pro Ser Phe Pro Ser Ala
        195   200   205
Ile Ser Asn Tyr Thr Gly Leu Thr Gly Arg Leu Asn Lys Leu Leu Thr
    210   215   220
Val Leu Asp Gly Ile Val Asp Ser Ala Ile Ser Val Lys Thr Thr Glu
225   230   235   240

```
Thr Val Pro Asp Asp Ala Glu Thr Ser Ile Ser Ser Leu Lys Ser Leu
            245                 250                 255
Ile Lys Ala Ile Arg Asp Asn Ile Thr Thr Thr Arg Asn Glu Val Thr
            260                 265                 270
Lys Asp Asp Val Tyr Ala Leu Lys Lys Ala Leu Thr Cys Leu Thr Thr
            275                 280                 285
His Leu Ile Tyr His Ser Lys Val Asp Gly Ile Ser Phe Asp Met Leu
        290                 295                 300
Gly Thr Gln Lys Asn Lys Ser Ser Pro Leu Gly Lys Ile Gly Thr Ser
305                 310                 315                 320
Met Asp Asp Ile Ile Ala Met Phe Ser Asn Pro Asn Met Tyr Leu Val
                325                 330                 335
Lys Val Ala Tyr Leu Gln Ala Ile Glu His Ile Phe Leu Ile Ser Thr
                340                 345                 350
Lys Tyr Asn Asp Ile Phe Asp Tyr Thr Ile Asp Phe Ser Lys Arg Glu
            355                 360                 365
Ala Thr Asp Ser Gly Ser Phe Thr Asp Ile Leu Leu Gly Asn Lys Val
    370                 375                 380
Lys Glu Ser Leu Ser Phe Ile Glu Gly Leu Ile Ser Asp Ile Lys Ser
385                 390                 395                 400
His Ser Leu Lys Ala Gly Val Thr Gly Gly Ile Ser Ser Ser Ser Leu
                405                 410                 415
Phe Asp Glu Ile Phe Asp Glu Leu Asn Leu Asp Gln Ala Thr Ile Arg
                420                 425                 430
Thr Leu Val Ala Pro Leu Asp Trp Pro Leu Ile Ser Asp Lys Ser Leu
            435                 440                 445
His Pro Ser Leu Lys Met Val Val Val Leu Pro Gly Phe Phe Ile Val
    450                 455                 460
Pro
465
```

```
        <210> 31
        <211> 128
        <212> PRT
        <213> Babesia microti

        <400> 31
Leu Trp Phe Ile Lys Met Val Ser Phe Lys Ser Ile Leu Val Pro Tyr
  1             5                 10                 15
Ile Thr Leu Phe Leu Met Ser Gly Ala Val Phe Ala Ser Asp Thr Asp
            20                 25                 30
Pro Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Val
        35                 40                 45
Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly
    50                 55                 60
Thr Gly Trp Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro
65                 70                 75                 80
Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly
                85                 90                 95
Trp Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp Ser Ser Glu
            100                 105                 110
Arg Phe Gly Tyr Gln Leu Leu Pro Tyr Ser Arg Arg Ile Val Ile Phe
            115                 120                 125
```

```
<210> 32
<211> 245
<212> PRT
<213> Babesia microti

<400> 32
Gln Glu Cys Cys Leu Val Val Lys Asp Lys Val Ile Arg His Ala Ala
1               5                   10                  15
Phe Ala Ala Thr Ile Ile Ile Arg Arg Arg Arg Val Ser Phe Ile Ile
            20                  25                  30
Leu Gly Leu Ile Ile Ala Thr Met Thr Pro Phe Phe Thr Lys Val Phe
        35                  40                  45
Phe Phe Gln Arg Cys Leu Ser Ile Met Arg Phe Tyr Ser Ser Leu Pro
    50                  55                  60
Thr Phe Ile Leu Ile Glu Ile Ala Met Leu Phe Phe Met Ser Val Thr
65                  70                  75                  80
Cys Phe Leu Arg Cys Leu Ser Ile Ile Arg Phe Tyr Ser Ser Ile Ser
            85                  90                  95
Thr Phe Ile Leu Ile Asp Phe Val Met Pro Phe Phe Thr Leu Phe Thr
            100                 105                 110
Tyr Phe Leu Arg Cys Leu Ser Ile Met Arg Phe Ser Phe Ser Leu Leu
        115                 120                 125
Thr Phe Ile Arg Ile Asp Phe Val Met Pro Phe Phe Met Ser Val Thr
        130                 135                 140
Cys Phe Leu Arg Cys Leu Ser Ile Ile Arg Phe Tyr Ser Ser Ile Ser
145                 150                 155                 160
Thr Phe Ile Leu Ile Asp Phe Val Met Pro Phe Phe Thr Leu Phe Thr
            165                 170                 175
Tyr Phe Leu Arg Cys Leu Ser Ile Ile Arg Phe Tyr Ser Ser Ile Ser
        180                 185                 190
Thr Phe Ile Leu Ile Asp Phe Val Met Pro Phe Phe Thr Leu Phe Thr
        195                 200                 205
Tyr Phe Leu Arg Cys Leu Ser Ile Met Arg Phe Ser Phe Ser Leu Leu
    210                 215                 220
Thr Phe Ile Arg Ile Gly Phe Ala Met Pro Phe Phe Thr Leu Phe Ile
225                 230                 235                 240
Tyr Phe Leu Cys Arg
                245


<210> 33
<211> 293
<212> PRT
<213> Babesia microti

<400> 33
Thr Ala Phe Ala Ala Phe Leu Ala Phe Gly Asn Ile Ser Pro Val Leu
1               5                   10                  15
Ser Ala Gly Gly Ser Gly Gly Asn Gly Gly Asn Gly Gly Gly His Gln
            20                  25                  30
Glu Gln Asn Asn Ala Asn Asp Ser Ser Asn Pro Thr Gly Ala Gly Gly
        35                  40                  45
Gln Pro Asn Asn Glu Ser Lys Lys Lys Ala Val Lys Leu Asp Leu Asp
    50                  55                  60
Leu Met Lys Glu Thr Lys Asn Val Cys Thr Thr Val Asn Thr Lys Leu
```

```
65                    70                    75                    80
Val Gly Lys Ala Lys Ser Lys Leu Asn Lys Leu Glu Gly Glu Ser His
              85                    90                    95
Lys Glu Tyr Val Ala Glu Lys Thr Lys Glu Ile Asp Glu Lys Asn Lys
              100                   105                   110
Lys Phe Asn Glu Asn Leu Val Lys Ile Glu Lys Lys Lys Ile Lys
              115                   120                   125
Val Pro Ala Asp Thr Gly Ala Glu Val Asp Ala Val Asp Asp Gly Val
      130                   135                   140
Ala Gly Ala Leu Ser Asp Leu Ser Ser Asp Ile Ser Ala Ile Lys Thr
145                   150                   155                   160
Leu Thr Asp Asp Val Ser Glu Lys Val Ser Glu Asn Leu Lys Asp Asp
                  165                   170                   175
Glu Ala Ser Ala Thr Glu His Thr Asp Ile Lys Glu Lys Ala Thr Leu
              180                   185                   190
Leu Gln Glu Ser Cys Asn Gly Ile Gly Thr Ile Leu Asp Lys Leu Ala
              195                   200                   205
Glu Tyr Leu Asn Asn Asp Thr Thr Gln Asn Ile Lys Lys Glu Phe Asp
      210                   215                   220
Glu Arg Lys Lys Asn Leu Thr Ser Leu Lys Thr Lys Val Glu Asn Lys
225                   230                   235                   240
Asp Glu Asp Tyr Val Asp Val Thr Met Thr Ser Lys Thr Asp Leu Ile
                  245                   250                   255
Ile His Cys Leu Thr Cys Thr Asn Asp Ala His Gly Leu Phe Asp Phe
              260                   265                   270
Glu Ser Lys Ser Leu Ile Lys Gln Thr Phe Lys Leu Arg Ser Lys Asp
              275                   280                   285
Glu Gly Glu Leu Cys
      290


        <210> 34
        <211> 431
        <212> PRT
        <213> Babesia microti


        <400> 34
Gly Pro Lys Met Lys Val Asn Ser Ala Asn Leu Asp Phe Arg Trp Ala
1               5                   10                   15
Met Tyr Met Leu Asn Ser Lys Ile His Leu Ile Glu Ser Ser Leu Ile
              20                   25                   30
Asp Asn Phe Thr Leu Asp Asn Pro Ser Ala Tyr Glu Ile Leu Arg Val
      35                   40                   45
Ser Tyr Asn Ser Asn Glu Phe Gln Val Gln Ser Pro Gln Asn Ile Asn
      50                   55                   60
Asn Glu Met Glu Ser Ser Thr Pro Glu Ser Asn Ile Ile Trp Val Val
65                   70                   75                   80
His Ser Asp Val Ile Met Lys Arg Phe Asn Cys Lys Asn Arg Lys Ser
                  85                   90                   95
Leu Ser Thr His Ser Leu Thr Glu Asn Asp Ile Leu Lys Phe Gly Arg
              100                   105                   110
Ile Glu Leu Ser Val Lys Cys Ile Ile Met Gly Ala Gly Ile Thr Ala
      115                   120                   125
Ser Asp Leu Asn Leu Lys Gly Leu Gly Phe Ile Ser Pro Asp Lys Gln
      130                   135                   140
```

```
Ser Thr Asn Val Cys Asn Tyr Phe Glu Asp Met His Glu Ser Tyr His
145                 150                 155                 160
Ile Leu Asp Thr Gln Arg Ala Ser Asp Cys Val Ser Asp Asp Gly Ala
                165                 170                 175
Asp Ile Asp Ile Ser Asn Phe Asp Met Val Gln Asp Gly Asn Ile Asn
            180                 185                 190
Ser Val Asp Ala Asp Ser Glu Thr Cys Met Ala Asn Ser Gly Val Thr
            195                 200                 205
Val Asn Asn Thr Glu Asn Val Ser Asn Ser Glu Asn Phe Gly Lys Leu
    210                 215                 220
Lys Ser Leu Val Ser Thr Thr Thr Pro Leu Cys Arg Ile Cys Leu Cys
225                 230                 235                 240
Gly Glu Ser Asp Pro Gly Pro Leu Val Thr Pro Cys Asn Cys Lys Gly
                245                 250                 255
Ser Leu Asn Tyr Val His Leu Glu Cys Leu Arg Thr Trp Ile Lys Gly
                260                 265                 270
Arg Leu Ser Ile Val Lys Asp Asp Asp Ala Ser Phe Phe Trp Lys Glu
            275                 280                 285
Leu Ser Cys Glu Leu Cys Gly Lys Pro Tyr Pro Ser Val Leu Gln Val
    290                 295                 300
Asp Asp Thr Glu Thr Asn Leu Met Asp Ile Lys Lys Pro Asp Ala Pro
305                 310                 315                 320
Tyr Val Val Leu Glu Met Arg Ser Asn Ser Gly Asp Gly Cys Phe Val
                325                 330                 335
Val Ser Val Ala Lys Asn Lys Ala Ile Ile Gly Arg Gly His Glu Ser
            340                 345                 350
Asp Val Arg Leu Ser Asp Ile Ser Val Ser Arg Met His Ala Ser Leu
    355                 360                 365
Glu Leu Asp Gly Gly Lys Val Val Ile His Asp Gln Gln Ser Lys Phe
    370                 375                 380
Gly Thr Leu Val Arg Ala Lys Ala Pro Phe Ser Met Pro Ile Lys Gly
385                 390                 395                 400
Pro Ile Cys Leu Gln Val Ser Ile Phe Phe Leu Asn Leu Lys Ile Ser
                405                 410                 415
Thr His Ser Leu Thr Met Glu Arg Gly Met Glu His Val Leu Leu
                420                 425                 430
```

```
<210> 35
<211> 6
<212> PRT
<213> Babesia microti

<220>
<221> VARIANT
<222> (1)...(1)
<223> Xaa = Glutamic Acid or Glycine

<221> VARIANT
<222> (2)...(2)
<223> Xaa = Alanine or Threonine

<221> VARIANT
<222> (3)...(3)
<223> Xaa = Glycine or Valine
```

```
        <221> VARIANT
        <222> (4)...(4)
        <223> Xaa = Tryptophan or Glycine

        <221> VARIANT
        <222> (5)...(5)
        <223> Xaa = Proline or Serine

<400> 35
Xaa Xaa Xaa Xaa Xaa Ser
 1               5

        <210> 36
        <211> 32
        <212> PRT
        <213> Babesia microti

        <220>
        <221> VARIANT
        <222> (6)...(6)
        <223> Xaa = Methionine or Isoleucine

        <221> VARIANT
        <222> (9)...(9)
        <223> Xaa = Tyrosine or Serine

        <221> VARIANT
        <222> (10)...(10)
        <223> Xaa = Serine or Phenylalanine

        <221> VARIANT
        <222> (12)...(12)
        <223> Xaa = Leucine or Isoleucine

        <221> VARIANT
        <222> (13)...(13)
        <223> Xaa = Proline, Serine or Leucine

        <221> VARIANT
        <222> (17)...(17)
        <223> Xaa = Leucine or Arginine

        <221> VARIANT
        <222> (19)...(19)
        <223> Xaa = Glutamic Acid, Aspartic Acid or Glycine

        <221> VARIANT
        <222> (20)...(20)
        <223> Xaa = Isoleucine or Phenylalanine

        <221> VARIANT
        <222> (21)...(21)
        <223> Xaa = Alanine or Valine
```

<221> VARIANT
<222> (23)...(23)
<223> Xaa = Leucine or Proline

<221> VARIANT
<222> (26)...(26)
<223> Xaa = Methionine or Threonine

<221> VARIANT
<222> (27)...(27)
<223> Xaa = Serine or Leucine

<221> VARIANT
<222> (28)...(28)
<223> Xaa = Valine or Phenylalanine

<221> VARIANT
<222> (29)...(29)
<223> Xaa = Threonine or Isoleucine

<221> VARIANT
<222> (30)...(30)
<223> Xaa = Cysteine ro Tyrosine

<400> 36
Arg Cys Leu Ser Ile Xaa Arg Phe Xaa Xaa Ser Xaa Xaa Thr Phe Ile
1   5   10   15
Xaa Ile Xaa Xaa Xaa Met Xaa Phe Phe Xaa Xaa Xaa Xaa Xaa Phe Leu
            20   25   30

<210> 37
<211> 1820
<212> DNA
<213> Babesia microti

<400> 37
cggcacgagt agccccacc atcttttgca ttcatttcaa gtttctccaa atctcgatgg   60
gacctccaat tttggctcca ccacaaacaa gtctgacata ttgagcaaaa catattgatt   120
taatttaaag aacagacatc tggccattca tgctaagagg tctcttcatt gttgagtggg   180
aacagccttg tatacgggct tacaacacaa tggaaaaaca ccttgtagaa gagatcatgc   240
ttcactcagt gctagatgtt gatgccagtg atttgcttgg ggtagtaagc cagtactaga   300
atacaggatg cacttggact ggcaaacaga atacacctgt tgcctgaata gaaactcaca   360
gagacccgat gctgtctggt accaacaagg ttctgcttct gggaagaatt tacagatatt   420
atgttgggaa aagagacacc ctgtatgtgt agaaacaaag aagcacagat cttagatgaa   480
ttaatataag aatgatactt ctctagaaac aaatgtagtt accaactata ttccagaacc   540
caatgcggat tcagaatctg tacatgttga atccaggaa catgataaca tcaatccaca   600
agacgcttgc gatagtgagc cgctcgaaca atggattct gataccaggg tgttgcccga   660
aagtttggat gagggggtac acaccaatt tctagatta gggcaccact cagacatggc   720
atctgatata aatgatgaag aaccatcatt taaaatcggc gagaatgaca taattcaacc   780
accctgggaa gatacagctc cataccattc aatagatgat gaagagcttg acaacttaat   840
gagactaacg gcgcaagaaa caagtgacga tcatgaagaa gggaatggca aactcaatac   900
gaataaaagt gagaagactg aaagaaaatc gcatgatact cagacaccgc aagaaatata   960
tgaagagctt gacaacttac tgagactaac ggcacaagaa atatatgaag agcgtaaaga   1020

```
aggcatggc  aaacccaata  cgaataaaag  tgagaaggct  gaaagaaaat  cgcatgatac    1080
tcagacaacg  caagaaatat  gtgaagagtg  tgaagaaggg  catgacaaaa  tcaataagaa    1140
taaaagtgga  aatgctggaa  taaaatcgta  tgatactcag  acaacgcaag  aaatatgtga    1200
agagtgtgaa  gaagggcatg  acaaaatcaa  taagaataaa  agtggaaatg  ctggaataaa    1260
atcgtatgat  actcagacac  cgcaggaaac  aagtgacgct  catgaagaag  ggcatgacaa    1320
aatcaatacg  aataaaagtg  agaaggctga  agaaaatcg   catgatactc  agacaacgca    1380
agaaatatgt  gaagagtgtg  aagaagggca  tgacaaaatc  aataagaata  aaagtggaaa    1440
tgctggaata  aaatcgtatg  atactcagac  accgcaggaa  acaagtgacg  ctcatgaaga    1500
agagcatggc  aatctcaata  gaataaaag   tgggaaggct  ggaataaaat  cgcataatac    1560
tcagacaccg  ctgaaaaaaa  aagacttttg  taaagaaggg  tgtcatggtt  gcaataataa    1620
gcccgaggat  aatgaaagag  acccgtcgtc  gcctgatgat  gatggtggct  gcgaatgcgg    1680
catgacgaat  cactttgtct  ttgactacaa  gacaacactc  ttgttaaaga  gcctcaagac    1740
tgaaacatcc  actcattatt  acattgccat  ggctgcaatt  tttactattt  cattattccc    1800
atgcatgttt  aaggctttcc                                                    1820
```

<210> 38
<211> 445
<212> PRT
<213> Babesia microti

<400> 38

```
Tyr Lys Asn Asp Thr Ser Leu Glu Thr Asn Val Val Thr Asn Tyr Ile
1               5                   10                  15
Pro Glu Pro Asn Ala Asp Ser Glu Ser Val His Val Glu Ile Gln Glu
            20                  25                  30
His Asp Asn Ile Asn Pro Gln Asp Ala Cys Asp Ser Glu Pro Leu Glu
        35                  40                  45
Gln Met Asp Ser Asp Thr Arg Val Leu Pro Glu Ser Leu Asp Glu Gly
    50                  55                  60
Val Pro His Gln Phe Ser Arg Leu Gly His His Ser Asp Met Ala Ser
65                  70                  75                  80
Asp Ile Asn Asp Glu Glu Pro Ser Phe Lys Ile Gly Glu Asn Asp Ile
                85                  90                  95
Ile Gln Pro Pro Trp Glu Asp Thr Ala Pro Tyr His Ser Ile Asp Asp
            100                 105                 110
Glu Glu Leu Asp Asn Leu Met Arg Leu Thr Ala Gln Glu Thr Ser Asp
        115                 120                 125
Asp His Glu Glu Gly Asn Gly Lys Leu Asn Thr Asn Lys Ser Glu Lys
    130                 135                 140
Thr Glu Arg Lys Ser His Asp Thr Gln Thr Pro Gln Glu Ile Tyr Glu
145                 150                 155                 160
Glu Leu Asp Asn Leu Leu Arg Leu Thr Ala Gln Glu Ile Tyr Glu Glu
                165                 170                 175
Arg Lys Glu Gly His Gly Lys Pro Asn Thr Asn Lys Ser Glu Lys Ala
            180                 185                 190
Glu Arg Lys Ser His Asp Thr Gln Thr Thr Gln Glu Ile Cys Glu Glu
        195                 200                 205
Cys Glu Glu Gly His Asp Lys Ile Asn Lys Asn Lys Ser Gly Asn Ala
    210                 215                 220
Gly Ile Lys Ser Tyr Asp Thr Gln Thr Thr Gln Glu Ile Cys Glu Glu
225                 230                 235                 240
Cys Glu Glu Gly His Asp Lys Ile Asn Lys Asn Lys Ser Gly Asn Ala
                245                 250                 255
Gly Ile Lys Ser Tyr Asp Thr Gln Thr Pro Gln Glu Thr Ser Asp Ala
```

```
            260                    265                    270
His Glu Glu Gly His Asp Lys Ile Asn Thr Asn Lys Ser Glu Lys Ala
        275                    280                    285
Glu Arg Lys Ser His Asp Thr Gln Thr Thr Gln Glu Ile Cys Glu Glu
    290                    295                    300
Cys Glu Glu Gly His Asp Lys Ile Asn Lys Asn Lys Ser Gly Asn Ala
305                    310                    315                    320
Gly Ile Lys Ser Tyr Asp Thr Gln Thr Pro Gln Glu Thr Ser Asp Ala
                325                    330                    335
His Glu Glu Glu His Gly Asn Leu Asn Lys Asn Lys Ser Gly Lys Ala
            340                    345                    350
Gly Ile Lys Ser His Asn Thr Gln Thr Pro Leu Lys Lys Lys Asp Phe
            355                    360                    365
Cys Lys Glu Gly Cys His Gly Cys Asn Asn Lys Pro Glu Asp Asn Glu
        370                    375                    380
Arg Asp Pro Ser Ser Pro Asp Asp Asp Gly Gly Cys Glu Cys Gly Met
385                    390                    395                    400
Thr Asn His Phe Val Phe Asp Tyr Lys Thr Thr Leu Leu Leu Lys Ser
                405                    410                    415
Leu Lys Thr Glu Thr Ser Thr His Tyr Tyr Ile Ala Met Ala Ala Ile
            420                    425                    430
Phe Thr Ile Ser Leu Phe Pro Cys Met Phe Lys Ala Phe
            435                    440                    445
```

```
        <210> 39
        <211> 32
        <212> PRT
        <213> Babesia microti

        <220>
        <221> VARIANT
        <222> (3)...(3)
        <223> Xaa = Glycine or Aspartic Acid

        <221> VARIANT
        <222> (5)...(5)
        <223> Xaa = Proline or Isoleucine

        <221> VARIANT
        <222> (7)...(7)
        <223> Xaa = Lysine or Threonine

        <221> VARIANT
        <222> (11)...(11)
        <223> Xaa = Glutamic Acid or Glycine

        <221> VARIANT
        <222> (12)...(12)
        <223> Xaa = Lysine or Asparagine

        <221> VARIANT
        <222> (14)...(14)
        <223> Xaa = Glutamic Acid or Glycine
```

```
        <221> VARIANT
        <222> (15)...(15)
        <223> Xaa = Isoleucine or Arginine

        <221> VARIANT
        <222> (18)...(18)
        <223> Xaa = Histidine or Tyrosine

        <221> VARIANT
        <222> (23)...(23)
        <223> Xaa = Threonine or Proline

        <221> VARIANT
        <222> (26)...(26)
        <223> Xaa = Isoleucine or Threonine

        <221> VARIANT
        <222> (27)...(27)
        <223> Xaa = Cysteine or Serine

        <221> VARIANT
        <222> (28)...(28)
        <223> Xaa = Aspartic Acid or Glutamic Acid

        <221> VARIANT
        <222> (29)...(29)
        <223> Xaa = Glutamic Acid or Alanine

        <221> VARIANT
        <222> (30)...(30)
        <223> Xaa = Cysteine or Histidine

        <400> 39
Gly His Xaa Lys Xaa Asn Xaa Asn Lys Ser Xaa Xaa Ala Xaa Xaa Lys
1               5                   10              15
Ser Xaa Asp Thr Gln Thr Xaa Gln Glu Xaa Xaa Xaa Xaa Xaa Glu Glu
        20              25                  30


        <210> 40
        <211> 2430
        <212> DNA
        <213> Babesia microti

        <400> 40
tgtattgtgt agataaaaat gatgtttcat tatggaaatc aaaacctata acaactgtca    60
gtaccactaa tgatactatt acaaatacac acactactaa tgtaattaat gccaatctta   120
ttggccactt taattataag gatagggaac ctttaacaat agtatttgta tacatgatcg   180
atgaatcaga acaaaataaa ttatcacatc cgaataaaat tgataaaatc aaaatttctg   240
attatataat tgaatttgat gacaatgcta aattaccaac tggtagtgtt attgatttaa   300
acatctatac ttgcaaacat aataatccag tattaattga attttatgtt tctatagaag   360
gatctttctg ctattatttc tctcattgaa taatgataca aatgaatgga ataatcacaa   420
aataaaatat gataaaaaat ataaagaata tacggacatg aatggtattc attattatta   480
tattgatggt agtttacttg taagtggcga agttacatct aattttcgtt atatttctaa   540
agaatatgaa tatgagcata caggattagt aaaaaaatat tgtaatgaag aaagatgtgt   600
```

```
aaaattggat  aacattaaga  taaaggataa  taatttggaa  atttatgtga  aataatttaa      660
tgaagtataa  tattatttat  aataattcaa  agattaatat  aatcaattat  tataattaca      720
aaaataatta  attgtagaat  attatattat  taatcaattc  agattataaa  tacatatttt      780
tacatacatt  tcaatttaaa  cattcaaatt  aatgtcattt  ttatctacat  tattataatt      840
ataactataa  tattcattaa  atactattaa  aaaaaatatc  ctctacatta  tattaattat      900
tatagtatgt  cattatataa  catattcaca  acgtataaca  aatcaatcat  taacatatac      960
atatatgata  tcattaataa  tcaatattta  attgatacaa  taatcaatag  tcatctgtaa     1020
tataatcatt  gtatactaat  ttattataaa  ttattacaaa  atacactctt  ttacttcatt     1080
ttatttctgt  taaatttcat  attctaatat  tatattcatc  tttctcatgt  tactttaatc     1140
tatttccata  tttatcccaa  tttcttcatt  taagactgag  atgttcgttc  gttcatacat     1200
aaataatgtg  taaattttgt  aatatataat  aatgtataca  tctggtatta  catctatttt     1260
gtaataaata  ttaaaaaaac  ggttaaagtt  agtgccttaa  ttccaggaat  tattacatta     1320
gaaactttgg  tgattttagt  gatttcggtg  atcattgaaa  gaaatggttt  gaaacttgca     1380
atactgtcat  actcatcata  atccccaatg  ttggaaatca  tgatgtcaac  aattttatta     1440
aattcttctg  ctgcactatt  caactcctta  atcatgtcct  caaaatgagt  gttataatct     1500
ccatcctttt  tagtgatctt  atccctcaaa  actaaagctt  tagatttgga  ttcgtcaaaa     1560
tttttcttga  tatcattaac  ggtattgtca  taatagaatt  tatagattaa  atgttgtaat     1620
aataagtcac  aatatataaa  catatcttta  agtacaatag  acttccatat  attacggaaa     1680
tggtcaaaat  tatcagcagc  tggaccttcc  aatgtaccat  aggccttgtt  tgatatttca     1740
tcaaccaata  acttatattt  tgaagagata  gtggatgcat  tatcaaatat  tctagccaat     1800
tcttctttct  tcataaggga  atattgttca  ggaaaacatt  tttccaattc  ttttttcaat     1860
ttattcttct  ccttggtttt  ttcttcaatg  tagtctttat  gaccatcgtt  caccctatct     1920
cgttccaata  tcataacact  atgtttgtat  atataagata  aacaaacttc  attaaatata     1980
actattcttc  tagaatacgg  aagaagctga  tatccaaatc  gttcactaga  ccaaccagct     2040
tcactaggcc  aaccagttcc  actaggccaa  ccagttccac  taggcccacc  agcttcacta     2100
ggcccaccag  cttcactagg  cccaccagct  tcactaggcc  caccagcttc  actaggccaa     2160
ccagttccac  taggcccacc  agcttcacta  ggcccaccag  cttcactggg  cccaacagtt     2220
ccactaggcc  caccagcttc  actaggccca  ccagcttcgg  gatcggtatc  acttgcaaag     2280
acagcaccgc  tcattaaaaa  gagtgtaata  taaggaacta  atattgattt  aaatgacacc     2340
atctttataa  accatagtta  ttggtacatt  attagtacat  tattggtata  tgattggtac     2400
gtggtagtga  ttgtggtgct  gcatctagtt                                        2430
```

```
        <210>  41
        <211>  128
        <212>  PRT
        <213>  Babesia microti

        <400>  41
Tyr Cys Val Asp Lys Asn Asp Val Ser Leu Trp Lys Ser Lys Pro Ile
1                   5                   10                  15
Thr Thr Val Ser Thr Thr Asn Asp Thr Ile Thr Asn Thr His Thr Thr
                20                  25                  30
Asn Val Ile Asn Ala Asn Leu Ile Gly His Phe Asn Tyr Lys Asp Arg
        35                  40                  45
Glu Pro Leu Thr Ile Val Phe Val Tyr Met Ile Asp Glu Ser Glu Gln
    50                  55                  60
Asn Lys Leu Ser His Pro Asn Lys Ile Asp Lys Ile Lys Ile Ser Asp
65                  70                  75                  80
Tyr Ile Ile Glu Phe Asp Asp Asn Ala Lys Leu Pro Thr Gly Ser Val
                85                  90                  95
Ile Asp Leu Asn Ile Tyr Thr Cys Lys His Asn Asn Pro Val Leu Ile
            100                 105                 110
Glu Phe Tyr Val Ser Ile Glu Gly Ser Phe Cys Tyr Tyr Phe Ser His
        115                 120                 125
```

```
<210> 42
<211> 1271
<212> DNA
<213> Babesia microti

<400> 42
tgagaaaacg catataattg taactacgcc agagaagttt gacgtagtta cacgtaaaac    60
aggcaatgag cccctgcttg agcggcttag attggttata attgatgaaa tacacctact   120
ccatgacact aggggtccag tgctggaggc tattgtggcc cgcctgagtc agaggcccga   180
acgcgtaagg ctagttggtc tatcggccac gcttccaaac tacgaagacg tggctagatt   240
tctcactgtt aatctagacc gagggctttt ctactttggc agccacttta ggcctgtgcc   300
cttggagcag gtgtattatg gcgtgaagga gaagaaggct atcaaacgtt tcaacgcaat   360
caacgaaatt ctctaccaag aggtgattaa cgatgtttct agctgccaaa ttcttgtttt   420
tgtgcattct agaaaggaaa cgtacaggac ggcaaaattt atcaaagaca cggccctttc   480
acgggacaac ttgggagcct aaaccctaaa ccctaaaccc taaaccctaa ccctaaaccc   540
taaaccctaa accctaaacc ctaaacccta accctaaccc taaccctaac cctaacctag   600
ccttcattga cgtctatccc caatcttaga aaaatcttca aatcgattct agaataactg   660
gaagcaatta tcagaaattg tataactgct tattagctta ttagcttatt agttaggatg   720
tatgcacatt gatgacaact agatgcagca ccacaatcac taccacgtac caatcatata   780
ccaataatgt actaataatg taccaataac tatggtttat aaagatggtg tcatttaaat   840
caatattagt tccttatatt acactctttt taatgagcgg tgctgtcttt gcaggtgata   900
ccgatcgcga agctggtggg cctagtggaa ctgttgggcc tagtgaagct ggtgggccta   960
gtgaagctgg tgggcctagt gaagctggtg ggcctagtga agctggtggg cctagtgaag  1020
ctggtgggcc tagtgaagct ggtgggccta gtgaagctgg tgggcctagt gaagctggtg  1080
ggcctagtgg aactggttgg cctagtgaag ctggtgggcc tagtgaagct ggtgggccta  1140
gtgaagctgg tgggcctagt ggaactggtt ggcctagtga agctggttgg cctagtgaag  1200
ctggttggcc tagtgaagct ggttggccta gtgaagctgg ttggcctagt gaagctggtt  1260
ggcctagtga a                                                       1271
```

```
<210> 43
<211> 166
<212> PRT
<213> Babesia microti

<400> 43
Glu Lys Thr His Ile Ile Val Thr Thr Pro Glu Lys Phe Asp Val Val
1               5                   10                  15
Thr Arg Lys Thr Gly Asn Glu Pro Leu Leu Glu Arg Leu Arg Leu Val
            20                  25                  30
Ile Ile Asp Glu Ile His Leu Leu His Asp Thr Arg Gly Pro Val Leu
        35                  40                  45
Glu Ala Ile Val Ala Arg Leu Ser Gln Arg Pro Glu Arg Val Arg Leu
    50                  55                  60
Val Gly Leu Ser Ala Thr Leu Pro Asn Tyr Glu Asp Val Ala Arg Phe
65                  70                  75                  80
Leu Thr Val Asn Leu Asp Arg Gly Leu Phe Tyr Phe Gly Ser His Phe
                85                  90                  95
Arg Pro Val Pro Leu Glu Gln Val Tyr Tyr Gly Val Lys Glu Lys Lys
            100                 105                 110
Ala Ile Lys Arg Phe Asn Ala Ile Asn Glu Ile Leu Tyr Gln Glu Val
            115                 120                 125
Ile Asn Asp Val Ser Ser Cys Gln Ile Leu Val Phe Val His Ser Arg
        130                 135                 140
```

Lys Glu Thr Tyr Arg Thr Ala Lys Phe Ile Lys Asp Thr Ala Leu Ser
145   150   155   160
Arg Asp Asn Leu Gly Ala
                165

        <210> 44
        <211> 154
        <212> PRT
        <213> Babesia microti

        <400> 44
Leu Trp Phe Ile Lys Met Val Ser Phe Lys Ser Ile Leu Val Pro Tyr
 1   5   10   15
Ile Thr Leu Phe Leu Met Ser Gly Ala Val Phe Ala Gly Asp Thr Asp
        20   25   30
Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly Pro Ser Glu Ala Gly
        35   40   45
Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu
        50   55   60
Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro
65   70   75   80
Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly
                85   90   95
Trp Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu
            100   105   110
Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp Pro
        115   120   125
Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly
        130   135   140
Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu
145   150

        <210> 45
        <211> 4223
        <212> DNA
        <213> Babesia microti

        <400> 45
ctcgtgcctt tctcaactga taacagctaa caaaaagtct cttatcttaa accatcctat   60
acctcgtatt ataatatgaa aagggccttt tctaaatctt tccccaaagt tctgctattt   120
aattaaaaaa aaaaaagact cattcaataa acgggtgggg cagaaagggt acctttccaa   180
gtgttcttcc atgacgaccc acaatgcaaa gttcttctta caaagaaaag agaaagatcc   240
actgagtgat aagtaaccca gctgggggcg gcggtggtg gcgcacacct ttaatcccag   300
cactcgggag gcagaggcag gcggatctct gtgagttcga gaccaggctg accgacagc   360
ctccaaaaca atacagagaa accctgtctc ataaaaaacc aaaaaaaaag taacccagct   420
ggatttggta actgtctcag aaacagacta tataaacct catcaccccta caacaagtag   480
gaagctagcg ctccccaccc catcccaaca cacacacaca cacacacaca cacacacaca   540
cacacacaca cacgcacaca cgcacgcacg cacacacgca cgcacgcaca cacgcacaca   600
cgcacgcaca cacgcacaca cgcacgcacg cacgcacgca cgcacgcacg cacgcccttc   660
tgtgtctgtt ctgttcaaga agggtaccac aaaaaagtac cttatggcca catcaatgac   720
aattattact gtatataaaa tgccccccatg gatggcattg tattgtcgaa attaaaggca   780
ccccgaaag aacagcacag agggggctacc accaattaac tcccaggagg aaataaagac   840
agaagtgtga aggaggggaga gaggggaggga ggaagggagg gagaaaagga gggaaaggaa   900
caaggagtaa cagggacaaa agcagcagat ggtgccaggc aggagtgtgc ctaccacacc   960

```
gggccttccc gttacttcat ttactctcct ttgcagcctg ggaataaaca agtcacgcgt   1020
cacccggtgt ctcaagctca gcatggcttg atctgagtgc ccgtgtatgt gttcattcta   1080
taactgattt aaggaacaac tttctgctca ttgcctctat cttctcaaac atttcgaagc   1140
agttattttt tataagaaaa tataaaacag gccgactaaa ttcgatcttt ctctccccag   1200
ctgctagttt cttatctagc tgctttaggc agtctccaca gattgcagcc aggcccctat   1260
tctcaattcc atctgacttc tgacagcgct ctccatttct tatttgcagc ttagacatct   1320
tcactgagag caggagtaat tcattcaaat gacaatgagg tatctgaata tcacacaaac   1380
acttcaaatt ctgtttattg gaaatagatc tgctcctgcc ccatcataac aatccttttt   1440
atcttactta acaggggcaa gaaaatcttt cacttcattt cctatcatct caaatgagtt   1500
cctgtacatg aatgacttaa ggtaaccata tccaacaact tgaagccaac cagtccctgg   1560
tcctactaca gacgttaggg aacatatgtg aaaacctggt gtacaaccta aatcataact   1620
agacagaaga cagcactatt tcctggtcac atagaaagca gaatagcatc ctcacaccaa   1680
tgaggaaaat gtcatgaagg caggagagat catgactgag gtgatacttt taccaaagac   1740
ttgccagtga ttaatttctc aattagttag caaaaaatat ggctctctag tgaatttgtg   1800
tccacaccat tttccagatg ttttgatgtc acttaaatca atctaattat ttaagttaaa   1860
aaatgttaca gatcattgct ttttttcttt tttagaagac atcaaaacaa taggatttct   1920
atgaaatatt ctcacttcac agctgtgtca gttaaagtgc tttgggttat acataaagaa   1980
aacagactca agaaagtaag aacaggaatt tggagcttgc aacactgatg ttctttgtaa   2040
aaagagagac tttatccagg gattagattc tgtcacaagg cctggaactc tctcttctca   2100
gccttatttc cccaatatgg attagaatct tacactgcaa gcttcccaca agggtggaca   2160
ggtcctcacc atttgtttca gcaggaaaaa gagtctgtat gcatccgtga tatctaagtc   2220
acaattccag aagtgagctt tcctggctcc tattggtcgg acttaggtca ggtgtcacat   2280
ttccttttgg attagtctgt gattaatgaa tgggcccact ttgctcaccc attaagacaa   2340
taggcttcca ttctcgaagc tggaagcatg acatgtccca cagaaactgt aataagagag   2400
aacataggtt gctgtgtgga gaaacgaggc aaccggcaag tcataagatg acaaagtctt   2460
ggaaagtcta agtcagtggt tctcagcctt ccctaaaccc taaaccctaa accctaaacc   2520
ctaaacccta aaccctaaac ccctaaaccc taaaccctaa accctaaacc ctaaacccta   2580
accctaaacc ctaaacccta aaccctaaac cctaaaccct aaccctaacc ctaaccctaa   2640
ccctaaccta gccttcattg acgtctatcc ccaatcttag aaaaatcttc aaatcgattc   2700
tagaataact ggaagcaatt atcagaaatt gtataactgc ttattagctt attagcttat   2760
tagttaggat gtatgcacat tgatgacaac tagatgcagc accacaatca ctaccacgta   2820
ccaatcatat accaataatg tactaataat gtaccaataa ctatggttta taaagatggt   2880
gtcatttaaa tcaatattag ttccttatat tacactcttt ttaatgagcg gtgctgtctt   2940
tgcaggtgat accgatcgcg aagctggtgg gcctagtgga actgttgggc ctagtgaagc   3000
tggtgggcct agtgaagctg gtgggcctag tgaagctggt gggcctagtg aagctggtgg   3060
gcctagtgaa gctggtgggc ctagtgaagc tggtgggcct agtgaagctg gtgggcctag   3120
tggaactgtt gggcctagtg aagctggtgg gcctagtgaa gctggtgggc ctagtgaagc   3180
tggtgggcct agtgaagctg gttggcctag tgaagctggt tggcctagtg aagctggttg   3240
gcctagtgaa gctggttggc ctagtgaagc tggttggcct agtgaagctg gttggcctag   3300
tgaacgattt ggatatcagc ttctttggta ttctagaaga atagttatat ttaatgaaat   3360
ttatttatct catatatacg aacatagtgt tatgatattg gaacgagata gggtgaacga   3420
tggtcataaa gactacattg aagaaaaaac caaggagaag aataaattga aaaaagaatt   3480
ggaaaaatgt tttcctgaac aatattccct tatgaagaaa gaagaattgg ctagaataat   3540
tgataatgca tccactatct cttcaaaata taagttattg gttgatgaaa tatccaacaa   3600
agcctatggt acattggaag gtccagctgc tgatgatttt gaccatttcc gtaatatatg   3660
gaagtctatt gtacctaaaa atatgtttct atattgtgac ttattattaa aacatttaat   3720
ccgtttaacc cccagaaaga gctgaccaga caaaggttaa ctcttgaatc ccaggcatca   3780
gcctgggaat ccatcatggg actgatcaag accccctgaa tgtgggtgtc agtgaggagg   3840
cctaggtaat ctattgagcc tcggcagcca gatcagtacc catcccaatt atacacaatt   3900
gcagtgttgt ggtttcacag tgaataattg taggtcacag tccattatat tgatgtcaca   3960
gttttaatt gtcatgtcac agtgcaagct agtgatgtca gagtgtataa ctgtgttcat   4020
agagaatgta ttgatgtcac agtcaataat cgtgatgtca tagtgcagta tattgatgtc   4080
acaatgtata attgtgatgt taaagtgcaa gatagtgaag tcacagtata taattgtgat   4140
gtcatattgc attataatga tgtcacactt tataattttt tacatacagc actatagtga   4200
```

tgtaacagcc aataattgtg atg   4223

```
<210> 46
<211> 294
<212> PRT
<213> Babesia microti

<400> 46
Leu Trp Phe Ile Lys Met Val Ser Phe Lys Ser Ile Leu Val Pro Tyr
1               5                   10                  15
Ile Thr Leu Phe Leu Met Ser Gly Ala Val Phe Ala Gly Asp Thr Asp
            20                  25                  30
Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly Pro Ser Glu Ala Gly
        35                  40                  45
Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu
    50                  55                  60
Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro
65                  70                  75                  80
Ser Glu Ala Gly Gly Pro Ser Gly Thr Val Gly Pro Ser Glu Ala Gly
                85                  90                  95
Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu
            100                 105                 110
Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro
            115                 120                 125
Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly
    130                 135                 140
Trp Pro Ser Glu Arg Phe Gly Tyr Gln Leu Leu Trp Tyr Ser Arg Arg
145                 150                 155                 160
Ile Val Ile Phe Asn Glu Ile Tyr Leu Ser His Ile Tyr Glu His Ser
            165                 170                 175
Val Met Ile Leu Glu Arg Asp Arg Val Asn Asp Gly His Lys Asp Tyr
            180                 185                 190
Ile Glu Glu Lys Thr Lys Glu Lys Asn Lys Leu Lys Lys Glu Leu Glu
        195                 200                 205
Lys Cys Phe Pro Glu Gln Tyr Ser Leu Met Lys Lys Glu Glu Leu Ala
    210                 215                 220
Arg Ile Ile Asp Asn Ala Ser Thr Ile Ser Ser Lys Tyr Lys Leu Leu
225                 230                 235                 240
Val Asp Glu Ile Ser Asn Lys Ala Tyr Gly Thr Leu Glu Gly Pro Ala
            245                 250                 255
Ala Asp Asp Phe Asp His Phe Arg Asn Ile Trp Lys Ser Ile Val Pro
            260                 265                 270
Lys Asn Asn Phe Leu Tyr Cys Asp Leu Leu Leu Lys His Leu Ile Arg
    275                 280                 285
Leu Thr Pro Arg Lys Ser
290

<210> 47
<211> 30
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide of repeat region of antigen
```

BMNI-3 (SEQ ID NO:3)

```
    <400> 47
Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly
 1               5                  10                  15
Trp Thr Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp Ser
            20                  25                  30


    <210> 48
    <211> 30
    <212> PRT
    <213> Artificial Sequence

    <220>
    <223> Synthetic peptide of repeat region of antigen
          BMNI-3 (SEQ ID NO:3)

    <400> 48
Glu Ala Gly Gly Pro Ser Gly Thr Val Gly Pro Ser Gly Thr Gly Trp
 1               5                  10                  15
Pro Ser Glu Ala Gly Trp Gly Ser Glu Ala Gly Trp Ser Ser
            20                  25                  30


    <210> 49
    <211> 367
    <212> PRT
    <213> Babesia microti

    <400> 49
Met Val Ser Phe Lys Ser Ile Leu Val Pro Tyr Ile Thr Leu Phe Leu
 1               5                  10                  15
Met Ser Gly Ala Val Phe Ala Ser Asp Thr Asp Pro Glu Ala Gly Gly
            20                  25                  30
Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Val Gly Pro Ser Glu Ala
        35                  40                  45
Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser
    50                  55                  60
Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly
65                  70                  75                  80
Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Ser Glu Ala Gly Gly
                85                  90                  95
Trp Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp Ser Ser Glu
            100                 105                 110
Arg Phe Gly Tyr Gln Leu Leu Pro Tyr Ser Arg Arg Ile Val Ile Phe
            115                 120                 125
Asn Glu Val Cys Leu Ser Tyr Ile Tyr Lys His Ser Val Met Ile Leu
            130                 135                 140
Glu Arg Asp Arg Val Asn Asp Gly His Lys Asp Tyr Ile Glu Glu Lys
145                 150                 155                 160
Thr Lys Glu Lys Asn Lys Leu Lys Lys Glu Leu Glu Lys Cys Phe Pro
                165                 170                 175
Glu Gln Tyr Ser Leu Met Lys Lys Glu Glu Leu Ala Arg Ile Phe Asp
            180                 185                 190
Asn Ala Ser Thr Ile Ser Ser Lys Tyr Lys Leu Leu Val Asp Glu Ile
```

```
            195                  200                  205
Ser Asn Lys Ala Tyr Gly Thr Leu Glu Gly Pro Ala Ala Asp Asn Phe
    210                  215                  220
Asp His Phe Arg Asn Ile Trp Lys Ser Ile Val Leu Lys Asp Met Phe
225                  230                  235                  240
Ile Tyr Cys Asp Leu Leu Leu Gln His Leu Ile Tyr Lys Phe Tyr Tyr
                245                  250                  255
Asp Asn Thr Val Asn Asp Ile Lys Lys Asn Phe Asp Glu Ser Lys Ser
                260                  265                  270
Lys Ala Leu Val Leu Arg Asp Lys Ile Thr Lys Lys Asp Gly Asp Tyr
                275                  280                  285
Asn Thr His Phe Glu Asp Met Ile Lys Glu Leu Asn Ser Ala Ala Glu
    290                  295                  300
Glu Phe Asn Lys Ile Val Asp Ile Met Ile Ser Asn Ile Gly Asp Tyr
305                  310                  315                  320
Asp Glu Tyr Asp Ser Ile Ala Ser Phe Lys Pro Phe Leu Ser Met Ile
                325                  330                  335
Thr Glu Ile Thr Lys Ile Thr Lys Val Ser Asn Val Ile Ile Pro Gly
                340                  345                  350
Ile Lys Ala Leu Thr Leu Thr Val Phe Leu Ile Phe Ile Thr Lys
    355                  360                  365
```

<210> 50
<211> 1908
<212> DNA
<213> Babesia microti

<400> 50

```
aaaagattta atgaacatac tgacatgaat ggtattcatt attattatat tgatggtagt   60
ttacttgcga gtggcgaagt tacatctaat tttcgttata tttctaaaga atatgaatat  120
gagcatacag aattagcaaa agagcattgc aagaaagaaa aatgtgtaaa tgtggataac  180
attgaggata ataatttgaa aatatatgcg aaacagttta aatctgtagt tactactcca  240
gctgatgtag cgggtgtgtc agatggattt tttatacgtg gccaaaatct tggtgctgtg  300
ggcagtgtaa atgaacaacc taatactgtt ggtatgagtt tagaacaatt catcaagaac  360
gagctttatt ctttttagtaa tgaaatttat catacaatat ctagtcaaat cagtaattct  420
ttcttaataa tgatgtctga tgcaattgtt aaacatgata actatatttt aaaaaaagaa  480
ggtgaaggct gtgaacaaat ctacaattat gaggaattta tagaaaagtt gaggggtgct  540
agaagtgagg ggaataatat gtttcaggaa gctctgataa ggtttaggaa tgctagtagt  600
gaagaaatgg ttaatgctgc aagttatcta tccgccgccc ttttcagata taaggaattt  660
gatgatgaat tattcaaaaa ggccaacgat aattttggac gcgatgatgg atatgatttt  720
gattatataa atacaaagaa agagttagtt atacttgcca gtgtgttgga tggtttggat  780
ttaataatgg aacgtttgat cgaaaatttc agtgatgtca ataatacaga tgatattaag  840
aaggcatttg acgaatgcaa atctaatgct attatattga agaaaaagat acttgacaat  900
gatgaagatt ataagattaa tttaggaa atggtgaatg aagtaacatg tgcaaacaca  960
aaatttgaag ccctaaatga tttgataatt tccgactgtg agaaaaaagg tattaagata 1020
aacagagatg tgatttcaag ctacaaattg cttctttcca caatcaccta tattgttgga 1080
gctggagttg aagctgtaac tgttagtgtg tctgctacat ctaatggaac tgaatctggt 1140
ggagctggta gtggaactgg aactagtgtg tctgctacat ctactttaac tggtaatggt 1200
ggaactgaat ctggtggaac agctggaact actacgtcta gtggaactga agctggtgga 1260
actagtggaa ctactacgtc tagtggagct gctagtggta aagctggaac tggaacagct 1320
ggaactacta cgtctagtga aggtgctggt agtgataaag ctggaactgg aactagtgga 1380
actactacgt ctagtggaac tggtgctggt ggagctggta gtggtggacc tagtggacat 1440
gcttctaatg caaaaattcc tggaataatg acactaactc tatttgcatt attaacattt 1500
attgtaaatt gaatgaaaca catgatttat acattattat atattacaaa atttacacat 1560
```

```
tatttatgta tgaacgaacg aacatcttgc tcttaaataa agaaattgag atatatatgg    1620
aaatagatta aagtaacatg agaaagatga atataatatt agaatatgaa atttaacaga    1680
aataaaatga agtaaaagag tgtattttgt aataatttat aataaattag tatacaatga    1740
ttatattaca aatggctatt aaatatttta ttaattaaat attgattagt aatgatatta    1800
tgtatgtaca tgttagggtt gattgttata cattgtgaat atattatata attgtatatt    1860
atattgattg atataatgta gaggatattt ttttaaatag tatttaat                1908
```

        <210> 51
        <211> 1460
        <212> DNA
        <213> Babesia microti

        <400> 51
```
aatccaacat ctagcctagt tagtatatat aggttaatat cacattatag attatctttg      60
gatggattggt tattatataa catgtcgctg aatgacgatt attttgctag ataaatataac   120
taccggtgat tctgaggacc tactttaaag agaataatta acatatctac cagaatcagt     180
tccaatttat gtattttaaa gctaatcact actcgaaaac tacggtgaaa atggaaaaac     240
aagtggaagc tgtatgtcgt ggaaagtcac tacattttat gtgggcaaat ttaataattc     300
taaatactat gtttttgatg ttaaaaagcg aaaaacacac tttaatgcac attttaacat     360
catctgtata atatatatat cagcgttgaa atcatatggc aaaggtaata aagcgttaca     420
ttttgagcga ataaaggcac atatgcaaac gtatgaagcc ttgtatattt gtggaattat     480
attatgctag taatttgtga ttaataatgg caatatttat atacaaatat tcgagcgttc     540
tattatatgc atgcacataa ttaatcacaa actctcatat catggggcgg tttcgcccat     600
cataaacatt actgttagca ctctggtaga ttagcatggt gaatctctcg atacctgggc     660
tactgttgct ttccgcatat tccttaaatt ctgcaagtgc gggggatgta tatgagatat     720
cttctggtaa tccacccgac atagagccaa catctacttc tctagaaaca aatgtagtta     780
ccaactatat tccagaaccc aatgcggatt cagaatctgt acatgttgaa atccaggaac     840
atgataacat caatccacaa gacgcttgcg atagtgagcc gctcgaacaa atggattctg     900
ataccagggt gttgcccgaa agtttggatg aggggtacc acaccaattc tctagattag     960
ggcaccactc agacatggca tctgatataa atgatgaaga accatcattt aaaatcggcg    1020
agaatgacat aattcaacca ccctgggaag atacagctcc ataccattca atagatgatg    1080
aagagcttga caacttaatg agactaacgg cgcaagaaac aagtgacgat catgaagaag    1140
ggaatggcaa actcaatacg aataaaagtg agaagactga agaaaatcg catgatactc     1200
agacaccgca agaaatatat gaagagcttg acaacttact gagactaacg gcacaagaaa    1260
tatatgaaga gcgtaaagaa gggcatggca aacccaatac gaataaaagt gagaaggctg    1320
aaagaaaatc gcatgatact cagacaacgc aagaaatatg tgaagagtgt gaagaaggc     1380
atgacaaaat caataagaat aaaagtggaa atgctggaat aaaatcgtat gatactcaga    1440
caccgcagga aacaagtgac                                                1460
```

        <210> 52
        <211> 503
        <212> PRT
        <213> Babesia microti

        <400> 52
```
Lys Arg Phe Asn Glu His Thr Asp Met Asn Gly Ile His Tyr Tyr Tyr
1               5                   10                  15
Ile Asp Gly Ser Leu Leu Ala Ser Gly Glu Val Thr Ser Asn Phe Arg
            20                  25                  30
Tyr Ile Ser Lys Glu Tyr Glu Tyr Glu His Thr Glu Leu Ala Lys Glu
        35                  40                  45
His Cys Lys Lys Glu Lys Cys Val Asn Val Asp Asn Ile Glu Asp Asn
    50                  55                  60
Asn Leu Lys Ile Tyr Ala Lys Gln Phe Lys Ser Val Val Thr Thr Pro
```

```
65                        70                  75                        80
Ala Asp Val Ala Gly Val Ser Asp Gly Phe Phe Ile Arg Gly Gln Asn
                    85                  90                        95
Leu Gly Ala Val Gly Ser Val Asn Glu Gln Pro Asn Thr Val Gly Met
            100                 105                 110
Ser Leu Glu Gln Phe Ile Lys Asn Glu Leu Tyr Ser Phe Ser Asn Glu
        115                 120                 125
Ile Tyr His Thr Ile Ser Ser Gln Ile Ser Asn Ser Phe Leu Ile Met
    130                 135                 140
Met Ser Asp Ala Ile Val Lys His Asp Asn Tyr Ile Leu Lys Lys Glu
145                 150                 155                 160
Gly Glu Gly Cys Glu Gln Ile Tyr Asn Tyr Glu Glu Phe Ile Glu Lys
                165                 170                 175
Leu Arg Gly Ala Arg Ser Glu Gly Asn Asn Met Phe Gln Glu Ala Leu
            180                 185                 190
Ile Arg Phe Arg Asn Ala Ser Ser Glu Glu Met Val Asn Ala Ala Ser
        195                 200                 205
Tyr Leu Ser Ala Ala Leu Phe Arg Tyr Lys Glu Phe Asp Asp Glu Leu
    210                 215                 220
Phe Lys Lys Ala Asn Asp Asn Phe Gly Arg Asp Asp Gly Tyr Asp Phe
225                 230                 235                 240
Asp Tyr Ile Asn Thr Lys Lys Glu Leu Val Ile Leu Ala Ser Val Leu
                245                 250                 255
Asp Gly Leu Asp Leu Ile Met Glu Arg Leu Ile Glu Asn Phe Ser Asp
            260                 265                 270
Val Asn Asn Thr Asp Asp Ile Lys Lys Ala Phe Asp Glu Cys Lys Ser
        275                 280                 285
Asn Ala Ile Ile Leu Lys Lys Lys Ile Leu Asp Asn Asp Glu Asp Tyr
    290                 295                 300
Lys Ile Asn Phe Arg Glu Met Val Asn Glu Val Thr Cys Ala Asn Thr
305                 310                 315                 320
Lys Phe Glu Ala Leu Asn Asp Leu Ile Ile Ser Asp Cys Glu Lys Lys
            325                 330                 335
Gly Ile Lys Ile Asn Arg Asp Val Ile Ser Ser Tyr Lys Leu Leu Leu
            340                 345                 350
Ser Thr Ile Thr Tyr Ile Val Gly Ala Gly Val Glu Ala Val Thr Val
            355                 360                 365
Ser Val Ser Ala Thr Ser Asn Gly Thr Glu Ser Gly Gly Ala Gly Ser
    370                 375                 380
Gly Thr Gly Thr Ser Val Ser Ala Thr Ser Thr Leu Thr Gly Asn Gly
385                 390                 395                 400
Gly Thr Glu Ser Gly Gly Thr Ala Gly Thr Thr Thr Ser Ser Gly Thr
            405                 410                 415
Glu Ala Gly Gly Thr Ser Gly Thr Thr Thr Ser Ser Gly Ala Ala Ser
            420                 425                 430
Gly Lys Ala Gly Thr Gly Thr Ala Gly Thr Thr Thr Ser Ser Glu Gly
        435                 440                 445
Ala Gly Ser Asp Lys Ala Gly Thr Gly Thr Ser Gly Thr Thr Thr Ser
    450                 455                 460
Ser Gly Thr Gly Ala Gly Gly Ala Gly Ser Gly Gly Pro Ser Gly His
465                 470                 475                 480
Ala Ser Asn Ala Lys Ile Pro Gly Ile Met Thr Leu Thr Leu Phe Ala
            485                 490                 495
Leu Leu Thr Phe Ile Val Asn
```

500

<210> 53
<211> 275
<212> PRT
<213> Babesia microti

<400> 53
Met Val Asn Leu Ser Ile Pro Gly Leu Leu Leu Leu Ser Ala Tyr Ser
1   5   10   15
Leu Asn Ser Ala Ser Ala Gly Asp Val Tyr Glu Ile Ser Ser Gly Asn
            20   25   30
Pro Pro Asp Ile Glu Pro Thr Ser Thr Ser Leu Glu Thr Asn Val Val
        35   40   45
Thr Asn Tyr Ile Pro Glu Pro Asn Ala Asp Ser Glu Ser Val His Val
    50   55   60
Glu Ile Gln Glu His Asp Asn Ile Asn Pro Gln Asp Ala Cys Asp Ser
65   70   75   80
Glu Pro Leu Glu Gln Met Asp Ser Asp Thr Arg Val Leu Pro Glu Ser
                85   90   95
Leu Asp Glu Gly Val Pro His Gln Phe Ser Arg Leu Gly His His Ser
            100   105   110
Asp Met Ala Ser Asp Ile Asn Asp Glu Glu Pro Ser Phe Lys Ile Gly
            115   120   125
Glu Asn Asp Ile Ile Gln Pro Arg Trp Glu Asp Thr Ala Pro Tyr His
    130   135   140
Ser Ile Asp Asp Glu Glu Leu Asp Asn Leu Met Arg Leu Thr Ala Gln
145   150   155   160
Glu Thr Ser Asp Asp His Glu Glu Gly Asn Gly Lys Leu Asn Thr Asn
                165   170   175
Lys Ser Glu Lys Thr Glu Arg Lys Ser His Asp Thr Gln Thr Pro Gln
                180   185   190
Glu Ile Tyr Glu Glu Leu Asp Asn Leu Leu Arg Leu Thr Ala Gln Glu
            195   200   205
Ile Tyr Glu Glu Arg Lys Glu Gly His Gly Lys Pro Asn Thr Asn Lys
    210   215   220
Ser Glu Lys Ala Glu Arg Lys Ser His Asp Thr Gln Thr Thr Gln Glu
225   230   235   240
Ile Cys Glu Glu Cys Glu Glu Gly His Asp Lys Ile Asn Lys Asn Lys
                245   250   255
Ser Gly Asn Ala Gly Ile Lys Ser Tyr Asp Thr Gln Thr Pro Gln Glu
            260   265   270
Thr Ser Asp
        275

<210> 54
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 54

tttgcaggtg ataccgatcg cg   22

       \<210\> 55
       \<211\> 24
       \<212\> DNA
       \<213\> Artificial Sequence

       \<220\>
       \<223\> PCR Primer

       \<400\> 55
tggtattcta gaagaatagt tata   24

       \<210\> 56
       \<211\> 306
       \<212\> DNA
       \<213\> Babesia microti

       \<400\> 56
ttgcaggtga taccgatcgc gaagctggtg ggcctagtgg aactgttggg cccagtgaag   60
ctggtgggcc tagtgaagct ggtgggccta gtggaactgt tgggcccagt gaagctggtg   120
ggcctagtga agctggtggg cctagtggaa ctggttggcc tagtgaagct ggtgggccta   180
gtggaactgt tgggcccagt gaagctggtg ggcctagtga agctggtggg cctagtggaa   240
ctggttggcc tagtggaact ggttggccta gtgaagttgg ttggcccatt gaaccatttg   300
gatatc   306

       \<210\> 57
       \<211\> 318
       \<212\> DNA
       \<213\> Babesia microti

       \<400\> 57
ttgcaggtga taccgatcgc gaagctggtg ggcctagtgg aactgttggg cccagtgaag   60
ctggtgggcc tagtgaagct ggtgggccta gtggaactgt tgggcccagt gaagctggtg   120
ggcctagtga agctggtggg cctagtggaa ctggttggcc tagtgaagct ggtgggccta   180
gtggaactgt tgggcccagt gaagctggtg ggcctagtga agctggtggg cctagtggaa   240
ctggttggcc tagtggaact ggttggccta gtgaagttgg ttggcctaat gaaccatttg   300
gatatcacct ctttggt   318

       \<210\> 58
       \<211\> 358
       \<212\> DNA
       \<213\> Babesia microti

       \<400\> 58
ttgcaggtga taccgatcgc gaagctggtg ggcctagtgg aactgttggg cctagtgaag   60
ctggtgggcc tagtgaagct ggtgggccta gtgaagctgg tgggcctagt gaagctggtg   120
ggcctagtga agctggtggg cctagtgaag ctggtgggcc tagtgaagct ggtgggccta   180
gtgaagctgg tgggcctagt gaagctggtg ggcctagtga agctggttgg cctagtgaag   240
ctggttggcc tagtgaagct ggtgggccta gtggaactgg ttggcctagt gaagctggtt   300
ggcctagtga agctggttgg cctagtgaag ctggttggcc tagtgaagct ggttggcc   358

       \<210\> 59
       \<211\> 409

<212> DNA
<213> Babesia microti

<400> 59
```
tgcaggtgat accgatcgcg aagctggtgg gcctagtgga actgttgggc ctagtgaagc      60
tggtgggcct agtgaagctg gtgggcctag tgaagctggt gggcctagtg aagctggtgg     120
gcctagtgaa gctggtgggc ctagtgaagc tggtgggcct agtgaagctg gtgggcctag     180
tgaagctggt gggcctagtg aagctggtgg gcctagtgaa gctggttggc ctagtgaagc     240
tggttggcct agtgaagctg gtgggcctag tggaactggt tggcctagtg aagctggttg     300
gcctagtgaa gctggttggc ctagtgaagc tggttggcct agtgaagctg gttggcctag     360
tgaacgattt ggatatcagc ttctttggta ttctagaaga atagttata               409
```

<210> 60
<211> 351
<212> DNA
<213> Babesia microti

<400> 60
```
gtgaagctgg tgggcctagt ggaactgttg ggcctagtga agctggtggg cctagtgaag      60
ctggtgggcc tagtgaagct ggtgggccta gtgaagctgg tgggcctagt gaagctggtg     120
ggcctagtga agctggtggg cctagtgaag ctggtgggcc tagtgaagct ggtgggccta     180
gtgaagctgg tgggcctagt gaagctggtt ggcctagtga agctggttgg cctagtgaag     240
ctggtgggcc tagtggaact ggttggccta gtgaagctgg ttggcctagt gaagctggtt     300
ggcctagtga agctggttgg cctagtgaag ctggttggcc tagtgaacga t             351
```

<210> 61
<211> 410
<212> DNA
<213> Babesia microti

<400> 61
```
aggtgatacc gatcgcgaag ctggtgggcc tagtggaact gttgggccta gtgaagctgg      60
tgggcctagt gaagctggtg ggcctagtga agctggtggg cctagtgaag ctggtgggcc     120
tagtgaagct ggtgggccta gtgaagctgg tgggcctagt gaagctggtg ggcctagtga     180
agctggtggg cctagtgaag ctggtgggcc tagtgaagct ggtgggccta gtgaagctgg     240
ttggcctagt gaagctggtt ggcctagtga agctggtggg cctagtggaa ctggttggcc     300
tagtgaagct ggttggccta gtgaagctgg ttggcctagt gaagctggtt ggcctagtga     360
agctggttgg cctagtgaac gatttggata tcagcttctt tggtattcta               410
```

<210> 62
<211> 416
<212> DNA
<213> Babesia microti

<400> 62
```
ttgcaggtga taccgatcgc gaagctggtg ggcctagtgg aactgttggg cctagtgaag      60
ctggtgggcc tagtgaagct ggtgggccta gtgaagctgg tgggcctagt gaagctggtg     120
ggcctagtga agctggtggg cctagtgaag ctggtgggcc tagtgaagct ggtgggccta     180
gtgaagctgg tgggcctagt gaagctggtg ggcctagtga agctggtggg cctagtgaag     240
ctggtgggcc tagtgaagct ggttggccta gtgaagctgg ttggcctagt gaagctggtg     300
ggcctagtgg aactggttgg cctagtgaag ctggttggcc tagtgaagct ggttggccta     360
gtgaagctgg ttggcctagt gaagctggtt ggcctagtga acgatttgga tatcag        416
```

<210> 63

```
<211> 356
<212> DNA
<213> Babesia microti

<400> 63
ttgcaggtga taccgatcgc gaagctggtg ggcctagtgg aactgttggg cctagtgaag      60
ctggtgggcc tagtgaagct ggtgggccta gtgaagctgg tgggcctagt gaagctggtg     120
ggcctagtga agctggtggg cctagtgaag ctggtgggcc tagtgaagct ggtgggccta     180
gtgaagctgg tgggcctagt ggaactggtt ggcctagtga agctggttgg cctagtgaag     240
ctggttggcc tagtgaagct ggttggccta gtgaagctgg ttggcctagt gaagctggtt     300
ggcctagtga acgatttgga tatcagcttc tttggtattc tagaagaata gttata         356


<210> 64
<211> 285
<212> DNA
<213> Babesia microti

<400> 64
ttgcaggtga taccgatcgc gaagctggtg ggcctagtgg aactgttggg cctagtgaag      60
ctggtgggcc tagtgaagct ggtgggccta gtgaagctgg tgggcctagt gaagctggtg     120
ggcctagtga agctggtggg cctagtgaag ctggtgggcc tagtgaagct ggtgggccta     180
gtggaactgg ttggcctagt gaagctggtt ggcctagtga agctggttgg cctagtgaag     240
ctggttggcc tagtgaagct ggttggccta gtgaagctgg ttggc                     285


<210> 65
<211> 342
<212> DNA
<213> Babesia microti

<400> 65
ttgcaggtga taccgatcgc gaagctggtg ggcctagtgg aactgttggg cctagtgaag      60
ctggtgggcc tagtgaagct ggtgggccta gtgaagctgg tgggcctagt gaagctggtg     120
ggcctagtga agctggtggg cctagtgaag ctggtgggcc tagtgaagct ggtgggccta     180
gtgaagctgg tgggcctagt ggaactggtt ggcctagtga agctggttgg cctagtgaag     240
ctggttggcc tagtgaagct ggttggccta gtgaagctgg ttggcctagt gaagctggtt     300
ggcctagtga acgatttgga tatcagcttc tttggtattc ta                        342


<210> 66
<211> 363
<212> DNA
<213> Babesia microti

<400> 66
ttgcaggtga taccgatcgc gaagctggtg ggcctagtgg aactgttggg cctagtgaag      60
ctggtgggcc tagtgaagct ggtgggccta gtgaagctgg tgggcctagt gaagctggtg     120
ggcctagtga agctggtggg cctagtgaag ctggtgggcc tagtgaagct ggtgggccta     180
gtgaagctgg tgggcctagt gaagctggtg ggcctagtgg aactggttgg cctagtgaag     240
ctggttggcc tagtgaagct ggttggccta gtgaagctgg ttggcctagt gaagctggtt     300
ggcctagtga agctggttgg cctagtgaac gatttggata tcagcttctt tggtattcta     360
gaa                                                                   363


<210> 67
<211> 363
<212> DNA
```

<213> Babesia microti

<400> 67

```
ttgcaggtga taccgatcgc gaagctggtg ggcctagtgg aactgttggg cctagtgaag      60
ctggtgggcc tagtgaagct ggtgggccta gtgaagctgg tgggcctagt gaagctggtg     120
ggcctagtga agctggtggg cctagtgaag ctggtgggcc tagtgaagct ggtgggccta     180
gtgaagctgg tgggcctagt gaagctggtg ggcctagtgg aactggttgg cctagtgaag     240
ctggttggcc tagtgaagct ggttggccta gtgaagctgg ttggcctagt gaagctggtt     300
ggcctagtga agctggttgg cctagtgaac gatttggata tcagcttctt tggtattcta     360
gaa                                                                   363
```

<210> 68
<211> 101
<212> PRT
<213> Babesia microti

<400> 68

```
Ala Gly Asp Thr Asp Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly
1               5                   10                  15
Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr
            20                  25                  30
Val Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser
            35                  40                  45
Gly Thr Gly Trp Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Val Gly
        50                  55                  60
Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr
65                  70                  75                  80
Gly Trp Pro Ser Gly Thr Gly Trp Pro Ser Glu Val Gly Trp Pro Ile
                85                  90                  95
Glu Pro Phe Gly Tyr
            100
```

<210> 69
<211> 105
<212> PRT
<213> Babesia microti

<400> 69

```
Ala Gly Asp Thr Asp Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly
1               5                   10                  15
Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr
            20                  25                  30
Val Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser
            35                  40                  45
Gly Thr Gly Trp Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Val Gly
        50                  55                  60
Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr
65                  70                  75                  80
Gly Trp Pro Ser Gly Thr Gly Trp Pro Ser Glu Val Gly Trp Pro Asn
                85                  90                  95
Glu Pro Phe Gly Tyr His Leu Leu Trp
            100                 105
```

<210> 70

```
<211> 118
<212> PRT
<213> Babesia microti

<400> 70
Ala Gly Asp Thr Asp Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly
1               5                   10                  15
Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala
            20                  25                  30
Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser
        35                  40                  45
Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly
    50                  55                  60
Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala
65                  70                  75                  80
Gly Trp Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser
            85                  90                  95
Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp
            100                 105                 110
Pro Ser Glu Ala Gly Trp
        115


<210> 71
<211> 136
<212> PRT
<213> Babesia microti

<400> 71
Ala Gly Asp Thr Asp Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly
1               5                   10                  15
Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala
            20                  25                  30
Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser
        35                  40                  45
Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly
    50                  55                  60
Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala
65                  70                  75                  80
Gly Trp Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser
            85                  90                  95
Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp
            100                 105                 110
Pro Ser Glu Ala Gly Trp Pro Ser Glu Arg Phe Gly Tyr Gln Leu Leu
        115                 120                 125
Trp Tyr Ser Arg Arg Ile Val Ile
    130                 135


<210> 72
<211> 116
<212> PRT
<213> Babesia microti

<400> 72
Glu Ala Gly Gly Pro Ser Gly Thr Val Gly Pro Ser Glu Ala Gly Gly
```

```
 1                  5                    10                   15
Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala
                20                   25                   30
Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser
            35                   40                   45
Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly
        50                   55                   60
Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala
65                   70                   75                   80
Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser
                85                   90                   95
Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp
                100                  105                  110
Pro Ser Glu Arg
        115
```

```
        <210> 73
        <211> 136
        <212> PRT
        <213> Babesia microti


        <400> 73
Gly Asp Thr Asp Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly Pro
 1                  5                    10                   15
Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly
                20                   25                   30
Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu
            35                   40                   45
Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro
        50                   55                   60
Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly
65                   70                   75                   80
Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Gly Pro Ser Gly
                85                   90                   95
Thr Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro
                100                  105                  110
Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Arg Phe
            115                  120                  125
Gly Tyr Gln Leu Leu Trp Tyr Ser
130                  135
```

```
        <210> 74
        <211> 138
        <212> PRT
        <213> Babesia microti


        <400> 74
Ala Gly Asp Thr Asp Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly
 1                  5                    10                   15
Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala
                20                   25                   30
Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser
            35                   40                   45
Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly
```

```
       50                    55                    60
Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala
65                      70                    75                    80
Gly Gly Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser
                  85                    90                    95
Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp
                  100                   105                   110
Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala
            115                   120                   125
Gly Trp Pro Ser Glu Arg Phe Gly Tyr Gln
            130                   135


       <210> 75
       <211> 118
       <212> PRT
       <213> Babesia microti


       <400> 75
Ala Gly Asp Thr Asp Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly
1                   5                     10                    15
Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala
                  20                    25                    30
Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser
            35                    40                    45
Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly
      50                    55                    60
Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala
65                      70                    75                    80
Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser
                  85                    90                    95
Glu Ala Gly Trp Pro Ser Glu Arg Phe Gly Tyr Gln Leu Leu Trp Tyr
            100                   105                   110
Ser Arg Arg Ile Val Ile
            115


       <210> 76
       <211> 94
       <212> PRT
       <213> Babesia microti


       <400> 76
Ala Gly Asp Thr Asp Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly
1                   5                     10                    15
Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala
                  20                    25                    30
Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser
            35                    40                    45
Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp
      50                    55                    60
Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala
65                      70                    75                    80
Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp
            85                    90
```

<210> 77
<211> 113
<212> PRT
<213> Babesia microti

<400> 77
```
Ala Gly Asp Thr Asp Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly
1               5                   10                  15
Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala
            20                  25                  30
Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser
        35                  40                  45
Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly
    50                  55                  60
Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala
65                  70                  75                  80
Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser
                85                  90                  95
Glu Ala Gly Trp Pro Ser Glu Arg Phe Gly Tyr Gln Leu Leu Trp Tyr
                100                 105                 110
Ser
```

<210> 78
<211> 120
<212> PRT
<213> Babesia microti

<400> 78
```
Ala Gly Asp Thr Asp Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly
1               5                   10                  15
Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala
            20                  25                  30
Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser
        35                  40                  45
Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly
    50                  55                  60
Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala
65                  70                  75                  80
Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser
                85                  90                  95
Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Arg Phe Gly
                100                 105                 110
Tyr Gln Leu Leu Trp Tyr Ser Arg
        115                 120
```

<210> 79
<211> 120
<212> PRT
<213> Babesia microti

<400> 79
```
Ala Gly Asp Thr Asp Arg Glu Ala Gly Gly Pro Ser Gly Thr Val Gly
1               5                   10                  15
```

```
Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala
        20                  25                  30
Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser
        35                  40                  45
Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly Pro Ser Glu Ala Gly Gly
    50                  55                  60
Pro Ser Glu Ala Gly Gly Pro Ser Gly Thr Gly Trp Pro Ser Glu Ala
65                  70                  75                      80
Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser
            85                  90                  95
Glu Ala Gly Trp Pro Ser Glu Ala Gly Trp Pro Ser Glu Arg Phe Gly
            100                 105                 110
Tyr Gln Leu Leu Trp Tyr Ser Arg
        115                 120


    <210> 80
    <211> 29
    <212> DNA
    <213> Artificial Sequence

    <220>
    <223> PCR Primer

    <400> 80
cagagcagta ctgatgatat taagaaggc                                        29


    <210> 81
    <211> 43
    <212> DNA
    <213> Artificial Sequence

    <220>
    <223> PCR Primer

    <400> 81
caatatgaat tcagtgaata tttacaataa atgttaataa tgc                        43


    <210> 82
    <211> 32
    <212> DNA
    <213> Artificial Sequence

    <220>
    <223> PCR Primer

    <400> 82
cataacaata ttccagaacc caatgcggat tc                                    32


    <210> 83
    <211> 32
    <212> DNA
    <213> Artificial Sequence

    <220>
```

<223> PCR Primer

<400> 83
cgctagaatt cattagaaag ccttaaacat gc   32

<210> 84
<211> 2001
<212> DNA
<213> Babesia

<400> 84
atgcagcatc accaccatca ccacactgat gatattaaga aggcatttga cgaatgcaaa 60
tctaatgcta ttatattgaa gaaaaagata cttgacaatg atgaagatta taagattaat 120
tttagggaaa tggtgaatga agtaacatgt gcaaacacaa aatttgaagc cctaaatgat 180
ttgataattt ccgactgtga gaaaaaaggt attaagataa acagagatgt gatttcaagc 240
tacaaattgc ttctttccac aatcacctat attgttggag ctggagttga agctgtaact 300
gttagtgtgt ctgctacatc taatggaact gaatctggtg gagctggtag tggaactgga 360
actagtgtgt ctgctacatc tactttaact ggtaatggtg gaactgaatc tggtggaaca 420
gctggaacta ctacgtctag tggaactgaa gctggtggaa ctagtggaac tactacgtct 480
agtggagctg ctagtggtaa agctggaact ggaacagctg gaactactac gtctagtgaa 540
ggtgctggta gtgataaagc tggaactgga actagtggaa ctactacgtc tagtggaact 600
ggtgctggtg gagctggtag tggtggacct agtggacatg cttctaatgc aaaaattcct 660
ggaataatga cactaactct atttgcatta ttaacattta ttgtaaatat tccagaaccc 720
aatgcggatt cagaatctgt acatgttgaa atccaggaac atgataacat caatccacaa 780
gacgcttgcg atagtgagcc gctcgaacaa atggattctg ataccagggt gttgcccgaa 840
agtttggatg aggggtacc acaccaattc tctagattag ggcaccactc agacatggca 900
tctgatataa atgatgaaga accatcattt aaaatcggcg agaatgacat aattcaacca 960
ccctgggaag atacagctcc ataccattca atagatgatg aagagcttga caacttaatg 1020
agactaacgg cgcaagaaac aagtgacgat catgaagaag ggaatggcaa actcaatacg 1080
aataaaagtg agaagactga agaaaatcg catgatactc agacaccgca agaaatatat 1140
gaagagcttg acaacttact gagactaacg gcacaagaaa tatatgaaga gcgtaaagaa 1200
gggcatggca aacccaatac gaataaaagt gagaaggctg aaagaaaatc gcatgatact 1260
cagacaacgc aagaaatatg tgaagagtgt gaagaagggc atgacaaaat caataagaat 1320
aaaagtggaa atgctggaat aaaatcgtat gatactcaga caacgcaaga aatatgtgaa 1380
gagtgtgaag aagggcatga caaaatcaat aagaataaaa gtggaaatgc tggaataaaa 1440
tcgtatgata ctcagacacc gcaggaaaca agtgacgctc atgaagaagg gcatgacaaa 1500
atcaatacga ataaaagtga gaaggctgaa agaaatcgc atgatactca gacaacgcaa 1560
gaaatatgtg aagagtgtga agaagggcat gacaaaatca ataagaataa aagtggaaat 1620
gctggaataa aatcgtatga tactcagaca ccgcaggaaa caagtgacgc tcatgaagaa 1680
gagcatggca atctcaataa gaataaaagt gggaaggctg aataaaatc gcataatact 1740
cagacaccgc tgaaaaaaaa agactttgt aaagaagggg tcatggttg caataataag 1800
cccgaggata tgaaagaga cccgtcgtcg cctgatgatg atggtggctg cgaatgcggc 1860
atgacgaatc actttgtctt tgactacaag acaacactct tgttaaagag cctcaagact 1920
gaaacatcca ctcattatta cattgccatg ctgcaattt ttactatttc attattccca 1980
tgcatgttta aggctttctg a   2001

<210> 85
<211> 666
<212> PRT
<213> Babesia

<400> 85
Met Gln His His His His His His Thr Asp Asp Ile Lys Lys Ala Phe
                5   10   15

Asp Glu Cys Lys Ser Asn Ala Ile Ile Leu Lys Lys Lys Ile Leu Asp
            20   25   30

Asn Asp Glu Asp Tyr Lys Ile Asn Phe Arg Glu Met Val Asn Glu Val
            35   40   45

Thr Cys Ala Asn Thr Lys Phe Glu Ala Leu Asn Asp Leu Ile Ile Ser
        50   55   60

Asp Cys Glu Lys Lys Gly Ile Lys Ile Asn Arg Asp Val Ile Ser Ser
65   70   75   80

Tyr Lys Leu Leu Leu Ser Thr Ile Thr Tyr Ile Val Gly Ala Gly Val
                85   90   95

Glu Ala Val Thr Val Ser Val Ser Ala Thr Ser Asn Gly Thr Glu Ser
            100   105   110

Gly Gly Ala Gly Ser Gly Thr Gly Thr Ser Val Ser Ala Thr Ser Thr
            115   120   125

Leu Thr Gly Asn Gly Gly Thr Glu Ser Gly Gly Thr Ala Gly Thr Thr
    130   135   140

Thr Ser Ser Gly Thr Glu Ala Gly Gly Thr Ser Gly Thr Thr Thr Ser
145   150   155   160

Ser Gly Ala Ala Ser Gly Lys Ala Gly Thr Gly Thr Ala Gly Thr Thr
                165   170   175

Thr Ser Ser Glu Gly Ala Gly Ser Asp Lys Ala Gly Thr Gly Thr Ser
            180   185   190

Gly Thr Thr Thr Ser Ser Gly Thr Gly Ala Gly Gly Ala Gly Ser Gly
            195   200   205

Gly Pro Ser Gly His Ala Ser Asn Ala Lys Ile Pro Gly Ile Met Thr
    210   215   220

Leu Thr Leu Phe Ala Leu Leu Thr Phe Ile Val Asn Ile Pro Glu Pro
225   230   235   240

Asn Ala Asp Ser Glu Ser Val His Val Glu Ile Gln Glu His Asp Asn
            245   250   255

Ile Asn Pro Gln Asp Ala Cys Asp Ser Glu Pro Leu Glu Gln Met Asp
            260   265   270

Ser Asp Thr Arg Val Leu Pro Glu Ser Leu Asp Glu Gly Val Pro His
            275   280   285

Gln Phe Ser Arg Leu Gly His His Ser Asp Met Ala Ser Asp Ile Asn
    290   295   300

Asp Glu Glu Pro Ser Phe Lys Ile Gly Glu Asn Asp Ile Ile Gln Pro
305   310   315   320

Pro Trp Glu Asp Thr Ala Pro Tyr His Ser Ile Asp Asp Glu Glu Leu
                325   330   335

Asp Asn Leu Met Arg Leu Thr Ala Gln Glu Thr Ser Asp Asp His Glu
            340   345   350

Glu Gly Asn Gly Lys Leu Asn Thr Asn Lys Ser Glu Lys Thr Glu Arg
        355   360   365

Lys Ser His Asp Thr Gln Thr Pro Gln Glu Ile Tyr Glu Glu Leu Asp
    370   375   380

Asn Leu Leu Arg Leu Thr Ala Gln Glu Ile Tyr Glu Glu Arg Lys Glu
385   390   395   400

Gly His Gly Lys Pro Asn Thr Asn Lys Ser Glu Lys Ala Glu Arg Lys
                405   410   415

Ser His Asp Thr Gln Thr Thr Gln Glu Ile Cys Glu Glu Cys Glu Glu
            420   425   430

Gly His Asp Lys Ile Asn Lys Asn Lys Ser Gly Asn Ala Gly Ile Lys
        435   440   445

Ser Tyr Asp Thr Gln Thr Thr Gln Glu Ile Cys Glu Glu Cys Glu Glu
    450   455   460

Gly His Asp Lys Ile Asn Lys Asn Lys Ser Gly Asn Ala Gly Ile Lys
465   470   475   480

Ser Tyr Asp Thr Gln Thr Pro Gln Glu Thr Ser Asp Ala His Glu Glu
                485   490   495

Gly His Asp Lys Ile Asn Thr Asn Lys Ser Glu Lys Ala Glu Arg Lys
        500   505   510

Ser His Asp Thr Gln Thr Thr Gln Glu Ile Cys Glu Glu Cys Glu Glu
    515   520   525

Gly His Asp Lys Ile Asn Lys Asn Lys Ser Gly Asn Ala Gly Ile Lys
    530   535   540

Ser Tyr Asp Thr Gln Thr Pro Gln Glu Thr Ser Asp Ala His Glu Glu
545   550   555   560

Glu His Gly Asn Leu Asn Lys Asn Lys Ser Gly Lys Ala Gly Ile Lys
                565   570   575

Ser His Asn Thr Gln Thr Pro Leu Lys Lys Lys Asp Phe Cys Lys Glu
            580   585   590

```
Gly Cys His Gly Cys Asn Asn Lys Pro Glu Asp Asn Glu Arg Asp Pro
        595             600             605

Ser Ser Pro Asp Asp Asp Gly Gly Cys Glu Cys Gly Met Thr Asn His
        610             615             620

Phe Val Phe Asp Tyr Lys Thr Thr Leu Leu Leu Lys Ser Leu Lys Thr
625             630             635             640

Glu Thr Ser Thr His Tyr Tyr Ile Ala Met Ala Ala Ile Phe Thr Ile
                645             650             655

Ser Leu Phe Pro Cys Met Phe Lys Ala Phe
            660             665
```

```
        <210> 86
<211> 3402
<212> DNA
<213> Babesia

<400> 86
atgcagcatc accaccatca ccacttgact tttggaaata tacgttttca taatataaat 60
ctcccaccat tttcattggg cataattcac tcgattacgg tagaaaaggc gattaactct 120
gaagattttg acggaataca aacacttta caagtgtcta tcattgctag ttacggtcca 180
tctggcgatt acagtagttt tgtgttcact ccagttgtaa cagcagacac caacgttttt 240
tacaaattag agacggattt caaacttgat gttgatgtta ttactaagac atcactagaa 300
ttgcccacaa gtgttcctgg ctttcactac accgaaacta tttaccaagg cacagaattg 360
tcaaaattta gcaagcctca gtgcaaactt aacgatcctc ctattacaac aggatcgggg 420
ttgcaaataa tacatgatgg tttgaataat tcgacaatta taaccaacaa agaagttaat 480
gtggatggaa cagatttagt ttttttttgaa ttgctccctc catcggatgg cattcccacc 540
ttgcgatcaa aattatttcc cgtcctgaaa tcaattccaa tgatatctac cggggttaat 600
gaattactgt tggaagtact cgagaacccc tctttcccta gtgcaattag caattacacc 660
ggactgacag gccgacttaa caaattactt acagttttag acggtattgt tgatagcgcc 720
attagtgtca agactacaga aactgtccct gacgacgcag aaacttctat ttcttcattg 780
aaatcattga taaaggcaat acgagataat attactacca ctcgaaacga agttaccaaa 840
gatgatgttt atgcattgaa gaaggccctc acttgtctaa cgacacacct aatatatcat 900
tcaaaagtag atggtatatc attcgacatg ctgggaacac aaaaaaataa atctagccca 960
ctaggcaaga tcggaacgtc tatggacgat attatagcca tgttttcgaa tcccaatatg 1020
tatcttgtga aggtggcgta cttgcaagcc attgaacaca ttttttctcat atcaaccaaa 1080
tacaatgata tatttgatta caccattgat tttagtaagc gtgaagctac tgattctgga 1140
tcatttaccg atatattgct cggaaacaag gtgaaggaat ctttgtcatt tattgagggt 1200
ttgatttctg acataaaatc tcactcattg aaagctgggg ttacaggagg tatatcaagt 1260
tcatcattat ttgatgaaat cttcgacgag ttaaatttgg atcaagcaac aattagaacc 1320
cttgttgcac cattagattg gccacttatc tcagacaaaa gcctccaccc ttcactgaag 1380
atggttgtgg tcctgccagg attttttcata gttcctggat ccactgatga tattaagaag 1440
gcatttgacg aatgcaaatc taatgctatt atattgaaga aaaagatact tgacaatgat 1500
gaagattata agattaattt tagggaaatg gtgaatgaag taacatgtgc aaacacaaaa 1560
tttgaagccc taaatgattt gataatttcc gactgtgaga aaaaaggtat taagataaac 1620
agagatgtga tttcaagcta caaattgctt ctttccacaa tcacctatat tgttggagct 1680
ggagttgaag ctgtaactgt tagtgtgtct gctacatcta tggaactga atctggtgga 1740
gctggtagtg aactggaac tagtgtgtct gctacatcta ctttaactgg taatggtgga 1800
actgaatctg gtggaacagc tggaactact acgtctagtg gaactgaagc tggtggaact 1860
agtggaacta ctacgtctag tggagctgct agtggtaaag ctggaactgg aacagctgga 1920
```

```
actactacgt ctagtgaagg tgctggtagt gataaagctg gaactggaac tagtggaact 1980
actacgtcta gtggaactgg tgctggtgga gctggtagtg gtggacctag tggacatgct 2040
tctaatgcaa aaattcctgg aataatgaca ctaactctat ttgcattatt aacatttatt 2100
gtaaatattc cagaacccaa tgcggattca gaatctgtac atgttgaaat ccaggaacat 2160
gataacatca atccacaaga cgcttgcgat agtgagccgc tcgaacaaat ggattctgat 2220
accagggtgt tgcccgaaag tttggatgag ggggtaccac accaattctc tagattaggg 2280
caccactcag acatggcatc tgatataaat gatgaagaac catcatttaa aatcggcgag 2340
aatgacataa ttcaaccacc ctgggaagat acagctccat accattcaat agatgatgaa 2400
gagcttgaca acttaatgag actaacggcg caagaaacaa gtgacgatca tgaagaaggg 2460
aatggcaaac tcaatacgaa taaaagtgag aagactgaaa gaaaatcgca tgatactcag 2520
acaccgcaag aaatatatga agagcttgac aacttactga gactaacggc acaagaaata 2580
tatgaagagc gtaagaagg gcatggcaaa cccaatacga ataaaagtga gaaggctgaa 2640
agaaaatcgc atgatactca gacaacgcaa gaaatatgtg aagagtgtga agaagggcat 2700
gacaaaatca ataagaataa aagtggaaat gctggaataa aatcgtatga tactcagaca 2760
acgcaagaaa tatgtgaaga gtgtgaagaa gggcatgaca aaatcaataa gaataaaagt 2820
ggaaatgctg aataaaatc gtatgatact cagacaccgc aggaaacaag tgacgctcat 2880
gaagaaggc atgacaaaat caatacgaat aaaagtgaga aggctgaaag aaaatcgcat 2940
gatactcaga caacgcaaga aatatgtgaa gagtgtgaag aagggcatga caaaatcaat 3000
aagaataaaa gtggaaatgc tggaataaaa tcgtatgata ctcagacacc gcaggaaaca 3060
agtgacgctc atgaagaaga gcatggcaat ctcaataaga ataaaagtgg gaaggctgga 3120
ataaaatcgc ataatactca gacaccgctg aaaaaaaaag acttttgtaa agaagggtgt 3180
catggttgca ataataagcc cgaggataat gaaagagacc cgtcgtcgcc tgatgatgat 3240
ggtggctgcg aatgcggcat gacgaatcac tttgtctttg actacaagac aacactcttg 3300
ttaaagagcc tcaagactga acatccact cattattaca ttgccatggc tgcaattttt 3360
actatttcat tattcccatg catgtttaag gctttctaat ga         3402
```

```
<210> 87
<211> 1132
<212> PRT
<213> Babesia

<400> 87
Met Gln His His His His His His Leu Thr Phe Gly Asn Ile Arg Phe
                5                   10                  15

His Asn Ile Asn Leu Pro Pro Phe Ser Leu Gly Ile Ile His Ser Ile
            20                  25                  30

Thr Val Glu Lys Ala Ile Asn Ser Glu Asp Phe Asp Gly Ile Gln Thr
        35                  40                  45

Leu Leu Gln Val Ser Ile Ile Ala Ser Tyr Gly Pro Ser Gly Asp Tyr
    50                  55                  60

Ser Ser Phe Val Phe Thr Pro Val Val Thr Ala Asp Thr Asn Val Phe
65                  70                  75                  80

Tyr Lys Leu Glu Thr Asp Phe Lys Leu Asp Val Asp Val Ile Thr Lys
                85                  90                  95

Thr Ser Leu Glu Leu Pro Thr Ser Val Pro Gly Phe His Tyr Thr Glu
            100                 105                 110

Thr Ile Tyr Gln Gly Thr Glu Leu Ser Lys Phe Ser Lys Pro Gln Cys
```

```
           115                     120                     125
Lys Leu Asn Asp Pro Pro Ile Thr Thr Gly Ser Gly Leu Gln Ile Ile
    130                     135                 140

His Asp Gly Leu Asn Asn Ser Thr Ile Ile Thr Asn Lys Glu Val Asn
145                     150                 155                 160

Val Asp Gly Thr Asp Leu Val Phe Phe Glu Leu Leu Pro Pro Ser Asp
                165                 170                 175

Gly Ile Pro Thr Leu Arg Ser Lys Leu Phe Pro Val Leu Lys Ser Ile
                180                 185                 190

Pro Met Ile Ser Thr Gly Val Asn Glu Leu Leu Leu Glu Val Leu Glu
                195                 200                 205

Asn Pro Ser Phe Pro Ser Ala Ile Ser Asn Tyr Thr Gly Leu Thr Gly
    210                     215                 220

Arg Leu Asn Lys Leu Leu Thr Val Leu Asp Gly Ile Val Asp Ser Ala
225                     230                 235                 240

Ile Ser Val Lys Thr Thr Glu Thr Val Pro Asp Asp Ala Glu Thr Ser
                245                 250                 255

Ile Ser Ser Leu Lys Ser Leu Ile Lys Ala Ile Arg Asp Asn Ile Thr
                260                 265                 270

Thr Thr Arg Asn Glu Val Thr Lys Asp Asp Val Tyr Ala Leu Lys Lys
                275                 280                 285

Ala Leu Thr Cys Leu Thr Thr His Leu Ile Tyr His Ser Lys Val Asp
    290                     295                 300

Gly Ile Ser Phe Asp Met Leu Gly Thr Gln Lys Asn Lys Ser Ser Pro
305                     310                 315                 320

Leu Gly Lys Ile Gly Thr Ser Met Asp Asp Ile Ile Ala Met Phe Ser
                325                 330                 335

Asn Pro Asn Met Tyr Leu Val Lys Val Ala Tyr Leu Gln Ala Ile Glu
                340                 345                 350

His Ile Phe Leu Ile Ser Thr Lys Tyr Asn Asp Ile Phe Asp Tyr Thr
                355                 360                 365

Ile Asp Phe Ser Lys Arg Glu Ala Thr Asp Ser Gly Ser Phe Thr Asp
    370                     375                 380

Ile Leu Leu Gly Asn Lys Val Lys Glu Ser Leu Ser Phe Ile Glu Gly
385                     390                 395                 400

Leu Ile Ser Asp Ile Lys Ser His Ser Leu Lys Ala Gly Val Thr Gly
```

```
                    405                    410                    415
Gly Ile Ser Ser Ser Ser Leu Phe Asp Glu Ile Phe Asp Glu Leu Asn
            420                425                430

Leu Asp Gln Ala Thr Ile Arg Thr Leu Val Ala Pro Leu Asp Trp Pro
            435                440                445

Leu Ile Ser Asp Lys Ser Leu His Pro Ser Leu Lys Met Val Val Val
        450                455                460

Leu Pro Gly Phe Phe Ile Val Pro Gly Ser Thr Asp Asp Ile Lys Lys
465                470                475                480

Ala Phe Asp Glu Cys Lys Ser Asn Ala Ile Ile Leu Lys Lys Lys Ile
            485                490                495

Leu Asp Asn Asp Glu Asp Tyr Lys Ile Asn Phe Arg Glu Met Val Asn
            500                505                510

Glu Val Thr Cys Ala Asn Thr Lys Phe Glu Ala Leu Asn Asp Leu Ile
            515                520                525

Ile Ser Asp Cys Glu Lys Lys Gly Ile Lys Ile Asn Arg Asp Val Ile
            530                535                540

Ser Ser Tyr Lys Leu Leu Leu Ser Thr Ile Thr Tyr Ile Val Gly Ala
545                550                555                560

Gly Val Glu Ala Val Thr Val Ser Val Ser Ala Thr Ser Asn Gly Thr
            565                570                575

Glu Ser Gly Gly Ala Gly Ser Gly Thr Gly Thr Ser Val Ser Ala Thr
            580                585                590

Ser Thr Leu Thr Gly Asn Gly Gly Thr Glu Ser Gly Gly Thr Ala Gly
            595                600                605

Thr Thr Thr Ser Ser Gly Thr Glu Ala Gly Gly Thr Ser Gly Thr Thr
            610                615                620

Thr Ser Ser Gly Ala Ala Ser Gly Lys Ala Gly Thr Gly Thr Ala Gly
625                630                635                640

Thr Thr Thr Ser Ser Glu Gly Ala Gly Ser Asp Lys Ala Gly Thr Gly
            645                650                655

Thr Ser Gly Thr Thr Thr Ser Ser Gly Thr Gly Ala Gly Gly Ala Gly
            660                665                670

Ser Gly Gly Pro Ser Gly His Ala Ser Asn Ala Lys Ile Pro Gly Ile
            675                680                685

Met Thr Leu Thr Leu Phe Ala Leu Leu Thr Phe Ile Val Asn Ile Pro
```

690   695   700

Glu Pro Asn Ala Asp Ser Glu Ser Val His Val Glu Ile Gln Glu His
705   710   715   720

Asp Asn Ile Asn Pro Gln Asp Ala Cys Asp Ser Glu Pro Leu Glu Gln
                 725   730   735

Met Asp Ser Asp Thr Arg Val Leu Pro Glu Ser Leu Asp Glu Gly Val
             740   745   750

Pro His Gln Phe Ser Arg Leu Gly His His Ser Asp Met Ala Ser Asp
         755   760   765

Ile Asn Asp Glu Glu Pro Ser Phe Lys Ile Gly Glu Asn Asp Ile Ile
     770   775   780

Gln Pro Pro Trp Glu Asp Thr Ala Pro Tyr His Ser Ile Asp Asp Glu
785   790   795   800

Glu Leu Asp Asn Leu Met Arg Leu Thr Ala Gln Glu Thr Ser Asp Asp
                 805   810   815

His Glu Glu Gly Asn Gly Lys Leu Asn Thr Asn Lys Ser Glu Lys Thr
             820   825   830

Glu Arg Lys Ser His Asp Thr Gln Thr Pro Gln Glu Ile Tyr Glu Glu
         835   840   845

Leu Asp Asn Leu Leu Arg Leu Thr Ala Gln Glu Ile Tyr Glu Glu Arg
     850   855   860

Lys Glu Gly His Gly Lys Pro Asn Thr Asn Lys Ser Glu Lys Ala Glu
865   870   875   880

Arg Lys Ser His Asp Thr Gln Thr Thr Gln Glu Ile Cys Glu Glu Cys
             885   890   895

Glu Glu Gly His Asp Lys Ile Asn Lys Asn Lys Ser Gly Asn Ala Gly
             900   905   910

Ile Lys Ser Tyr Asp Thr Gln Thr Thr Gln Glu Ile Cys Glu Glu Cys
         915   920   925

Glu Glu Gly His Asp Lys Ile Asn Lys Asn Lys Ser Gly Asn Ala Gly
     930   935   940

Ile Lys Ser Tyr Asp Thr Gln Thr Pro Gln Glu Thr Ser Asp Ala His
945   950   955   960

Glu Glu Gly His Asp Lys Ile Asn Thr Asn Lys Ser Glu Lys Ala Glu
             965   970   975

Arg Lys Ser His Asp Thr Gln Thr Thr Gln Glu Ile Cys Glu Glu Cys

```
                980                    985                    990
    Glu Glu Gly His Asp Lys Ile Asn Lys Asn Lys Ser Gly Asn Ala Gly
            995                1000               1005

    Ile Lys Ser Tyr Asp Thr Gln Thr Pro Gln Glu Thr Ser Asp Ala His
        1010               1015               1020

    Glu Glu Glu His Gly Asn Leu Asn Lys Asn Lys Ser Gly Lys Ala Gly
    1025               1030               1035               1040

    Ile Lys Ser His Asn Thr Gln Thr Pro Leu Lys Lys Lys Asp Phe Cys
                1045               1050               1055

    Lys Glu Gly Cys His Gly Cys Asn Asn Lys Pro Glu Asp Asn Glu Arg
            1060               1065               1070

    Asp Pro Ser Ser Pro Asp Asp Asp Gly Gly Cys Glu Cys Gly Met Thr
            1075               1080               1085

    Asn His Phe Val Phe Asp Tyr Lys Thr Thr Leu Leu Leu Lys Ser Leu
        1090               1095               1100

    Lys Thr Glu Thr Ser Thr His Tyr Tyr Ile Ala Met Ala Ala Ile Phe
    1105               1110               1115               1120

    Thr Ile Ser Leu Phe Pro Cys Met Phe Lys Ala Phe
                1125               1130
```

```
        <210> 88
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 88
ccgtcgcagc tgactttttgg aaatatacg                                    29


        <210> 89
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 89
ctagaattca taggatccag gaactatgaa aaatcc                             36


        <210> 90
<211> 27
```

```
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 90
cgtggatcca ctgatgatat taagaag                                          27

<210> 91
<211> 1148
<212> DNA
<213> Babesia microti

<400> 91
tgactggata tcgccaattg tattgtaaca ggtggttgct atggaaatat taccaagctg   60
cagcgcttta tcgccgagtc tcttccacct ttcaatattt atgggttcaa tttgcatttt  120
agacgcggat tttctgggcg agtttacctc agatgaatta tttggtgatt tcaaggcacc  180
tttataaaat gtctcataag aatcaccatt caattgttcc agacactaaa tatttgtcaa  240
cttactaact caacatcacc ggtgctcaaa gccaattcaa atttccttga tgcatttacc  300
gttatggcaa ctgctagctg tatattaccc atagcttcaa ctattacgct tatcctttcc  360
cgtaaatggg ttggtatttc agcaaccata tcaagtacta atccccaatt attctccaac  420
attgcagtct aaatgaattg attggattac attcaacttc aaataagttt cagttaggtt  480
gtatgacaga acatttccat ctcgatcaat aagatatatc ttgcttgttt caatggaata  540
gcccgagaat gtacagktta cgatctagat aagcgtgcgg atcaggcacg ccagttgtgt  600
acaaataaga gtctcagacc aactgktgkg taaataaatg tatcacaaac ccatactcca  660
ctcacaatac sktctgtaat ctaggttaaa caacaattta acctcagtat ccagctcaaa  720
tgttgatggt actccctcgt catcctgagg cgtattggca gcgactgata ccaaaaagga  780
attatgatca tattcttcta gttacgtttt ttctactgat ggaatcttta ccaaagttac  840
cccagctaca gggttttcaa ttggttgtgt aatatttggc aatcaattaa ttccacagtc  900
catggatgtt atcactagga ccgtttcata caccactaaa tatcctttga ttgttgttag  960
gattcaagat aagacttcga gttctacttc aaccgtttac tatgagcaat ctggtttaca 1020
atctagcaaa tttgttttga gggatgaccc agaatttatt attcctcaaa atcgaagtag 1080
tacttataca gtcaatgaca taacatataa atcatttgat atttctagtg ccgatgatac 1140
gaatttta                                                          1148

<210> 92
<211> 605
<212> DNA
<213> Babesia microti

<220>
<221> misc_feature
<222> (1)...(605)
<223> n=A,T,C or G

<400> 92
tggccttgcc tcaacttaat gtgccaggga ggcattagca tttctgagga gtattcactc   60
ctcagtgtgt ggtgggttga ggggaggtag ggagaaaggg agaaaggcag gaggggaaa   120
ctctaggtgt tatgaaaagt gtatataaca ttaaaattga gggtgagaag taatgaggat  180
aaatgtaatt acccataaga acttcggtcc agcaactgaa aagtagtgga acaactaaa   240
tgaacaaact ctgagaaaag gagaccatgt ttaataggaa ttcattccta cagaactatg  300
aaacactggt acttggtaca taagacaaac tacagaaagt aggatacgaa tgtcagagcc  360
```

```
ttcttttttat tttttttctg agagatttga tcttgctcag agatgccaat tgagttctat 420
actccaataa ttgagcactt gtaccttgac ctttaatatc ctccggaaaa attatagata 480
tgagggagta taggtatgag aaaattgtct catttgtatc ctgacctccm cttgtatcct 540
gatctccact tgttgntgac ccttcacttg tttgntgacc ttcccttgtt tggtgacctt 600
ccttg                                                          605
```

```
<210> 93
<211> 631
<212> DNA
<213> Babesia microti

<400> 93
gttcctactt tgtcatcatt ggtcaagttg ttcagtgaag ttatgctgag agtgaaggat 60
gcgtcttcca cagaggctac catacgcatg ttcctccgtt tcaacgcatt tataaaattt 120
ttgaatgagg agaaatccag aggtgacaaa agtgcgttga atgatgaggg attgatgagg 180
tttatatcga tgaccagtgg atttatcgat gaccttgaat tagttttaga tgagttatcc 240
aagcacagtt tgcttataaa taacgaaggt gccaagagca tgctatcctc tctcatacta 300
agcttccgtt atattaatca cataagaaat ttgatcaatg gtatttacct tggattgaat 360
aacccatcat cgtccattgg tgagacagca caagaaacaa ctgaaccctc cactcccact 420
cccactccca gcacacagac aatcctgaaa ccgaagggat ccgagataag gggctatata 480
ataaaagttg atcaaacagc taatctcatc acattcatag atgcattgat caaggagttg 540
aacgttcata ttaaacagac aacaacttcg tctggtkgtt ggcactaaag aaactaatgg 600
cactaccagt ggttctyctg aaagcaatcc c                              631
```

```
<210> 94
<211> 632
<212> DNA
<213> Babesia microti

<220>
<221> misc_feature
<222> (1)...(632)
<223> n=A,T,C or G

<400> 94
ataaataagt aaatacttac tgaaaacact tcaaaaacat gcaaaaacac agcataggac 60
ttaacaatta caaagtgaaa ctgtacaatt ccatccttct aatgccattt acaagttgag 120
aatttaggaa atataaatca taagcagata gatcaaaaac agaatatctg gaataatgaa 180
acataaaatg gaaatctaaa ctagaagtaa gttttataaa gccacaggca ggtactgaac 240
ctgagttcct ggttaccgac tgttagtctt cccttaatgg ggtagacttg ctggcccca 300
aagccactgg tatcatcatt ctgtctttgc atgtcctgtg caagggctca aggtgtgctg 360
ctgtgtccag tttgctacaa gagtactgag gctgagccca tatccccatg gttatatggt 420
gaacaatttc cacatggagc attctcccca gttcatcttc cagaattcaa tattgatgta 480
tcagttctta attcattgat gtaagtcaat ctcccttaaa ttaaaaatta atagaaagca 540
atttctctaa cgggcaactt tctgcttgcg tgtaatatgt atgtgaaatc tagattctgc 600
ngaggagacc aaaccagtnt atttttgtgc ct                            632
```

```
<210> 95
<211> 426
<212> DNA
<213> Babesia microti
```

<220>
<221> misc_feature
<222> (1)...(426)
<223> n=A,T,C or G

<400> 95
attttgtact gttcaaatgt gtaatatatt tgtgaaagaa gaaaataatt taagtcaaga 60
ggatgatgaa agggcagaag taatacttga gataagcact tcacatctta caattaaaac 120
tcttctgtgt ctacctgcaa attcatgaca gatgaaatta acttgntttc tattcggttt 180
ctcctcttat ttctgccagt attataattt caggaaggaa catgcatcat aaattacatg 240
taactttcat gttgcagtga tgctggtttc tatttttgat ctcatttgac agcagtaaag 300
tcatacnaaa aataataaat acctctcatg gagcttgcca tttcctctgc atcttttttg 360
gggaagaant ggcctgaaaa gtaaagcgtt aagactcaca aagtcaaaaa ctttcagata 420
gaaccc   426

<210> 96
<211> 472
<212> DNA
<213> Babesia microti

<220>
<221> misc_feature
<222> (1)...(472)
<223> n=A,T,C or G

<400> 96
aggtnacaca tagaggagtg tggtcaatta aacactcaag caccctatgt cttggtttgc 60
tctctattgc tgtgataaac accagagcta agcccaactt gaagttgtca catggtctcc 120
acacaaatac acacacacac acaccacaca cacacctatt gtatgcacat gcaccccccc 180
cccttncaa aaaaaagga ncctctactc tttaccagca ataaaaaatg aactaggtga 240
aaagaaaacc aaccttgctt catcatttag tcatagaaaa tgatactggg gttggcattt 300
actatcatta acctaaaata aatgtgtccc tacctaaggg tataaactgt tatctggcct 360
tgtacagatt ttggatcttg aattctttta gngggttgcc caatagcatt ttaaggnccc 420
agaataaata gaccggatga aatgggatgg gctagagtag aatggaggct an   472

<210> 97
<211> 867
<212> DNA
<213> Babesia microti

<220>
<221> misc_feature
<222> (1)...(867)
<223> n=A,T,C or G

<400> 97
ttaatattat gttcaccgaa acatcctgta gtatacaact caaccaattc accattaaat 60
gataatttga tcagtgtata ttgtgatgtt atatttattg gtattgttat ctcaccaacc 120
ttaacttcgc tgatgtaaat tttggaatct ggattattgg tgtacaacat gctcccatca 180
cttaatgata ttttaaaaa ttcgttatca tcggcactag aaatatcaaa tgatttatat 240
gttatgtcat tgactgtata agtactactt cgattttgag gaataataaa ttctgggtca 300

```
tccctcaaaa caaatttgct agattgnaaa ccagattgct catagtaaac gggtgaagta 360
gaactcgaag tcttatcttg aatcctaaca acmatcaaag gatatttagt ggtgtatgaa 420
acggtcctag tgataacaty catggactgt ggaattaatt gattgccaaa tattacacaa 480
ccaattgaaa accctgtagc tggggtaact ttggtaaaga ttccatcagt agaaaaaacg 540
taactagaag aaagaccctc tggaacttga tcaacaaatc ctatttcgtt tatgttaaga 600
ttcacaatat ttgtgacagc aacatcttgt gtggtctcca gagacggaga aattgttgat 660
gtggcagctg ttgttgatgt ggtagctgtt gttgatgtgg cagttgttgt tgatgtggca 720
gttgttgttg atgtggtagc tgttgttgat gtagcagatg ttgttgatgt agcagtacat 780
actgacagta catgtgcatg tgtgtgtaaa taggattctt gtaaagccaa gtatatcctc 840
actgctgatt tgtctgatat tacctcc                                     867
```

```
<210> 98
<211> 815
<212> DNA
<213> Babesia microti

<400> 98
tagtcattag attatcatga caccaataag cttttttatct tgaagttgtt ttatatatta 60
atacaaccat agcatcataa aagctacatt tgttttttttt atcttaaccc atggtcatct 120
agtctttttc ctttattatt catcattgat tgtccttaaa tgctcaaagc atctgcccct 180
ttaaactact tctttctaaa ttagcatata ctctatatgg tcatacctat tctgtgtaat 240
catcaggttc cctgtgcagg ggaaaggagg aacgctcaag cactgaggaa tcatcccgct 300
gtgtgataac gttgatggaa gacaagtgat acagttagtt gttcaaacaa ataagcatat 360
tttaagggga agaatagtgt cgtactaact aaaatctaat ttgaccataa tacgcacatt 420
agtttgtttg tgctcaattt ttttaatgaa tcaggccccc gatttatatt tgtgaaagtc 480
catgtgggag cgtaaggatg ggatagttta tttacagtag cttctctggg gaaaggaaag 540
caaagcccca actgtataga gttcattgga gctgtcacct acgcccctgc cttcctgtcc 600
ctttagagtg cctcagtttg ctgtgtggca agagtctctc cctgctcctg ctctcctagc 660
cccctctgcc tgcctccccc agttgatgcg agagtccact gttggagaag ttaactctaa 720
tcttacacct ggggagagct actggaaatt aattttccat gtaactggct ttgagttcta 780
gcaggcttta gattttagaa gttttttgtgt gtgtg                          815
```

```
<210> 99
<211> 1225
<212> DNA
<213> Babesia microti

<220>
<221> misc_feature
<222> (1)...(1225)
<223> n=A,T,C or G

<400> 99
attgtgtaaa gggttaccat ggccatggca attttttgtaa aagaaagcat ttaaatgggg 60
gcttgtttac agtttaagag ggttgactca tgaccatcat tgtgggaagc atggtagcag 120
gttggcatgg tgctggatca gtaattgaga gctttacact ctgatcctaa ggcatcagac 180
aaagaaaagc ctggtcctgg tgtgggcttg aagcctcaaa atcccctct aatgacacac 240
ttccctcaag tacatactta ttcctaaatc cttctcaaac agtttcaaaa cttgtgcctg 300
agtgttcaaa tatatgaacc tacagggggcc attcacattc aaattatcac aggcagataa 360
gttactagtc atggaagttc aaatatatac tttgttatga aaatataaat atgctttaga 420
atctggggaa cccagaaggg tggagatggg gtcaagattc tctgagatgg ggtcaagatt 480
ctctgtgtct ccctgggcct ggctggaatg tccctcctgt cttccaagtc ctctgttcca 540
```

```
ggtgaccatg tccccatccc agtccctcg atggtcctca tgccctcctc tcagttcctg 600
gctgctcccc cacccccgcc acatccccat caagggactg gccggctctc atactgctac 660
ccatgcaggg tgctcatgcc cttgcgcccc ggcacctta gtgtttcngt cccttcccgg 720
ccccactcag cgccacccca tgtcgcaggg ccgccgtccg cgccacggga ccttgcaagt 780
acaagcttga gccgcttccc ccctggcgyt gcgactgcgg tggctgccgc cttgcgggam 840
tccggcggtc gttccgacgt cacctactcg stgcttgtgc ctgctctgcg ggccgcgacg 900
gtccggcggg cgcatgccaa ccctgcgggc cacgcgtggc cttcgtcccg cgtcaggcag 960
ggttgcgaga acgcgccgcc acgsttgctg cacctgcggc cgggcgcgcg ctataccgtg 1020
cgcgtggccg cgctcaacgg tgtctcaggc ccagcggccg ccgcggaagc cacctacgcg 1080
caggtcaccg tgtccaccgg acccggaggt gaggccacgc gccccagcgg agtccgtccc 1140
cctccccaac cgcagttccc tctatgcatt ccaagtcatt caggaaccca cgtgactaca 1200
ccccatgccc caggtgcggc acgag                                    1225
```

<210> 100
<211> 537
<212> DNA
<213> Babesia microti

<220>
<221> misc_feature
<222> (1)...(537)
<223> n=A,T,C or G

```
<400> 100
aaagaaagag aagaagggag agaagagcaa ggggaatgaa tgagagagga gagaagggaa 60
tagaagagag gggagggcag aggaggggaa gcagagggga ggggaaagga aggagaaaga 120
gaacagagac agagggaagg tcaggtacat cactgtccaa gagatcacat attatccaag 180
cmacggacag agctttagga agtgtacaga gaggcacctt tcacccagtg tcctataatg 240
accatttctg caaattctct agaacttagt tccattctgc acaacccctc catacctgtc 300
atcatgtgct tcacttacta gcctcaagta agctgttaag tgttccagtg ttatatgcca 360
ttctagtacc ttcatccagt gactgataga agcagagcta aacnccnca gttaaacaat 420
aaactgaatc cctagaaccc mgtgaccgag agtgktctca taattcttaa aaagatgcta 480
ttaaatttta tcctgtatca tactacatta tctttttttc ttccttcccc tccccccc 537
```

<210> 101
<211> 543
<212> DNA
<213> Babesia microti

<220>
<221> misc_feature
<222> (1)...(543)
<223> n=A,T,C or G

```
<400> 101
acataacact agggacttgg cattgcatat ctgtaaatat aattgaaacc aaaataaaat 60
attggtgagt tccataggtt gggttgttca cagtgacatt taaaagtgaa attcttgaga 120
gctggtttgg aggttctatt aggggagtgc ggtacttgta taccttggac tgaagaccag 180
tcctcctcta ttccgggaag gycgycctct tcgaccaagc atgcacttca ggatggacac 240
acatggagtg ttgagggagg aaagagatcc ccctaagcca gatagatcaa ctaaatgaac 300
cttggaaata aatggggtga cagatgtarc avcgagaatg ccctcacata ctgaaaatga 360
```

```
aataattamc cmccwttagt ttttccatyt gatacctagg cmctytctaa tttaattcca 420
mcattctkga aaagtgkstt ttgaaagatt ggtgggcaac cccctaatt antcccctnc 480
caatggggta aggccaaaaa accaggggg aaattccaaa aattattgnt ttgtaaaggg 540
gaa                                                          543
```

```
<210> 102
<211> 811
<212> DNA
<213> Babesia microti

<220>
<221> misc_feature
<222> (1)...(811)
<223> n=A,T,C or G

<400> 102
tggataagga tgaagtcagt tagaccaata ctaattcatt ttattacatt ctttttaaca 60
agtggaaatg tctttgcagg aaatggtgat gttaatcaat attcaagtga ttttggacga 120
gcattaaacg atcttatgat cgcttttaac gaggctaaaa aaatgtatgc aaaattttct 180
gaacagatca cggacactat gattcatacc tgcaaaaata gtattgatat actagaagca 240
gatgagaaga atggtggtca taaaaattac cttgaaaaga aagaaattga gctcaaaagt 300
aaaattgtgg aatttaacgc cattttttca aacattgatt taaataatan gtacggktaa 360
aaatgaaata attaaactgc ttaatgatat atccactatc tctaccgata ttaagtcaat 420
tgttgatgaa atatactata aggctcttgg tacaattgaa ggtgaaaatg ctgaaaattt 480
tgagtatgaa attaagaaaa agaaagctga actacttaga aacctgctga atgataatat 540
taaaccaatt atggggatat ttaactgaga tatcaatatg ccatccaatt atatcaaata 600
aagcgaattt atgatatcaa gaaagcattt gaaaagcacg aattagaagc taatgttttg 660
atatcccaga tattagaaaa tatcagaatt ttggcactaa ttttaatgac attttaaatg 720
aagtgaatgg ngcaattgaa gaatttaata aaactattgg acgtcatgaa taacaccatt 780
ggggacccctt ggtattggta ttgacagcgg g                           811
```

```
<210> 103
<211> 2966
<212> DNA
<213> Babesia microti

<400> 103
ctcgtgccga atgtcatttta tgatctaata atattgtatt atctctaata ttatggtata 60
atagatactg tgaaaataaa ttcaactgga gataaggaaa ccatttgtat agatattta 120
tacaaattat tatgaaataa tctaaataaa tgacaaaaaa tcgattatac aaatcacatt 180
aatgacaaac aaacttgtat acatatattg attaacatta caaaactaaa ttataatatt 240
tagattgata attgttataa tacttaacaa tattctactt tttaatataa ttttttattc 300
aataatatac tctttcatat tttgtactat tttatataat catatatatt atataattat 360
atatatttga taattgaata tatcaataat gatgatatac atgaatatgc atatataccc 420
catataatgt tattatattt agtgcttaca ttattaatta taaatatatt taaataatta 480
aataataatg aaaattaaca tagacaatat aatattaatc aatttgataa tattattgaa 540
tcgtaatgta gtatattgtg tggataaaaa tgatgtttca ttatggaaat caaaacctat 600
aacaactgtc agtaccacta atgatactat tacaaataaa tacactagta ctgtaattaa 660
tgccaatttt gctagctacc gtgaatttga ggatagggaa ccttttaacaa taggatttga 720
atacatgatc gataaatcac aacaagataa attatcacat ccaaataaaa ttgataaaat 780
caaaatttct gattatataa ttgaatttga tgacaatgct aaattaccaa ctggtagtgt 840
taatgatata tccatcatta cttgcaagca taataatcca gtattaatta gattctcatg 900
```

```
tttaatagaa ggatctatct gctattattt ctacttattg aataatgata caaataaatg 960
gaataatcac aaaattaaaat atgataaaac atacaatgaa catactgaca ataatggtat 1020
taattattat aaaatcgatt atagtgaatc tacagaacct actaccgaat ctactacctg 1080
tttttgtttt cgcaaaaaaa atcataaatc tgagcgtaaa gaattagaaa attataaata 1140
tgagggtaca gaattagcaa gaatacattg taataaaggg aaatgtgtaa aattgggtga 1200
cattaagata aaggataaga atttggaaat ttatgtgaaa cagttaatgt ctgtaaatac 1260
tccagtaaat tttgacaacc ctacatcgat taatctacca ctgtcagtac taccaatgat 1320
actattacaa ataaatacac tggactataa ttaatgccaa tattgttgag tactgtgatt 1380
gaggatgacc ttacaatagg ttagatcctt agataaatca caacaaaata aattatcaca 1440
tccaaataaa attgataaaa tcaaawttty tgattatata attgaatttg cacgagatgt 1500
taaattaaca acaattggta ctgtcaatat tatatatatc tatacttgca agcataataa 1560
tccagtatta gttgaattta tagtttctat agaagratct tactacaatt acttctactc 1620
aatgaataat gatacaaata aatggaataa tcataaaata aaatatgata caagatttaa 1680
tgaacatact gacatgaatg gtattaatta ttatgaatat gtacttggta aatgcagttc 1740
ttatacttgt aaaaatgaat atgagcataa agaattagca agaatacatt gtaatgaaga 1800
aaaatgtgta aatgtaaagg tagataacat tgggaataaa aatttggaaa tttatctaaa 1860
ataatttaac gaagtgtaat atgtaaaata gtttaatgaa gtataatatt atttaaaata 1920
attcaaaatt tcagaaatta atataattaa ttattataaa tacaaaataa ttaattacaa 1980
aataacgtat tattagccat ttcagattgt aaatacatat ttttacatat attttttatta 2040
aaactttcaa attaatgttt tcatttttat aagcattatt ataattatat actataatta 2100
tcagtcatca aataatatcc aaagttatcc tctacattat atcaatcata cagtatacaa 2160
ttatataaaa tattaacaac atataacaac caacattaat atatacataa tatctttatt 2220
aatcaatatt taatcaatac aataattaat agttaactaa ctatacacat agtgtatact 2280
aaattattat aaattatatg ttataattac aaaaacgtca tttacttatt ttatttcagt 2340
tatgtttcat agtctaattt agatttggtg aaacgcatct ggctgatgtg ctggtgagca 2400
agcagttcca cgaagcaaac aatatgactg atgcgctggc ggcgctttct gcggcggttg 2460
ccgcacagct gccttgccgt gacgcgctga tgcaggagta cgacgacaag tggcatcaga 2520
acggtctggt gatggataaa tggtttatcc tgcaagccac cagcccggcg gcgaatgtgc 2580
tggagacggt gcgcggcctg ttgcagcatc gctcatttac catgagcaac ccgaaccgta 2640
ttcgttcgtt gattggcgcg tttgcgggca gcaatccggc agcgttccat gccgaagatg 2700
gcagcggtta cctgttcctg gtggaaatgc ttaccgacct caacagccgt aacccgcagg 2760
tggcttcacg tctgattgaa ccgctgattc gcctgaaacg ttacgatgcc aaacgtcagg 2820
agaaaatgcg cgcggcgctg gaacagttga aagggctgga aaatctctct ggcgatctgt 2880
acgagaagat aactaaagca ctggcttgat aaataaccga atggcggcaa tagcgccgcc 2940
attcggggaa tttacccctg ttttct                                      2966
```

```
<210> 104
<211> 1137
<212> DNA
<213> Babesia microti

<400> 104
gtttttttcc cctgaggttt tgattgttaa tttaatgtca aattaattgg attaagaaat 60
gccagcagag catggtggtg aacacctcta attcccaggc aggtgaatct ttgagttcaa 120
ggccaacctc atgtacaaac ctagttccca gtatasccat gmytaamcag ggaaaccgkg 180
tctkgggaaa aamcaaaawt aaamcagaag agaaaggggg aaatgcctgg ggattagtga 240
ggttaatgcc agtggtggta tttattacca gagacaataa gaccgtgaga gctctgggaa 300
ttttgtttgt ttgttttttg cttttccaag acagggtttc ttggtagctt tggagcctgt 360
cctggaactc aggctataga tcaggctggc ctcgaactca cagacatcca cctgcctctg 420
cctcccaaat gctgggatta aaggtgtgtg ctaccaccac ccgggctaga aagaacttgt 480
tagttgggat gtaaattctg ggtcatccct caaaacaaat ttgctagatt gtaaaccaga 540
ttgctcatag taaacggttg aagtagaact cgaagtctta tcttgaatcc taacaacaat 600
caaaggatat ttagtggtgt atgaaacggt cctagtgata acatccatgg actgtggaat 660
```

```
taattgattg ccaaatatta cacaaccaat tgaaaaccct gtagctgggg taactttggt 720
aaagattcca tcagtagaaa aaaccgtaac tagaagaaag accctctgga acttgatcaa 780
caaatcctat ttcgtttatg ttaagattca caatatttgt gacagcaaca tcttgtgtgg 840
tctccagaga cggagaaatt gttgatgtgg cagctgttgt tgatgtggta gctgttgttg 900
atgtggcagt tgttgttgat gtggcagttg ttgttgatgt ggtagctgtt gttgatgtag 960
cagatgttgt tgatgtagca gatgttgttg atgtagcagc tgttgttgat gtagcagctg 1020
ttgttgattg agcggcggtt gctgctgaag taggtattga atttgctata ctcacacttg 1080
tggcatcggt acctgcgcct cctctagtgt ttgttgccaa agtcagagtg agcctgt 1137
```

<210> 105
<211> 1010
<212> DNA
<213> Babesia microti

<400> 105
```
taggaatatg gatttgagct ttgcctatgg tatcatccca taggcatgag tcagggtcaa 60
aatcgccaga atattccagg caggttttag taaccctatc catcaatggc gtgttagggg 120
aaaccgaagg tatattattt gagtttttcat ccttagatat acagtttct aaggcataag 180
gggtttttccc gccagtgctt gtagtattgg ttattgacag tagttttta gttccacttt 240
cattagtgat agctgcggag gcttttgcga tagagctggc tagtatagat gaagattttg 300
agtctttgtt taggggggaag tgaatggtgc aattgaagaa tttaataaaa ctattgacgt 360
catgaataac accattgggg accttggtat tgttattgac agcggtatta tttcaagcat 420
aaaatcatat atttccacaa tcgccaagat ttctaaagca ataatccctg gacaaatggc 480
attagttttt actgcattaa tattaattct aaattaaatg aaattcagat gtatatatta 540
ttatatagta caaaatttac acatttatta tatacatgaa cgaacatctt gctcttaaat 600
aaagaaattg agatataaat ggaaataaat taaaagtaac atgagaaaga tgaatataat 660
attaaaatat taaatttaac tgaaataaaa tgaaataaaa gaatgtattt tataataatt 720
tataataaat tagtatacaa tgattctaca ttataacaag cgagaataaa taattattga 780
ttagtcataa tattatgtat atgttaaggt ttattgttat gtgttgctaa tatgttatat 840
aattgtatac catagtgatt gatataatgt agaggataac tttggatatt atttgatgac 900
tgataattat agtatataat tataataatg kttataaaaa tgacattaat ttgaaagttt 960
aaattaaaat atatgtaaaa atatgtattt aaatctgaaa tggctaataa 1010
```

<210> 106
<211> 1162
<212> DNA
<213> Babesia microti

<400> 106
```
atgtgaatgc attgatcaag gagttgaacg ctcatattaa acagagagca acatctacaa 60
caacaattat tattgaaact aatgctaaag atgtggatga gttagtgaaa aaatttgcaa 120
caattgcatc ttttgatgat aagttcaaga acgtattctt tgataattct gttattgatg 180
aaattgtcaa aacgttggaa aagatgaagg ttgagtcaga tactgtatta cctagttgca 240
atggaatcca gaccactgaa aactctagta ctgacccata tacagtatta tcaaaactta 300
taaagaaaat taacgactcc ataatcagac ctatgacttc tcggctgatc aacaaatcct 360
ttccggagtt gtgcaagttg tttataaaaa tgcccgatgt cgactccaca aatttatggc 420
tttggatgtg gacataagcc amcactcttg taamcagrag agtcagatat tctgatggca 480
gatttaccat tgtaagcact gggtccaatt ttagatacac attggcmcca actgccgctt 540
ggtcatgatt tgtctctctt ctcccaattg ccaatctcaa tgattacggc acatcgcctc 600
aggagcaggc acttacatct tgcgtcagtc atggtaacga attcagcata gtaagcactg 660
caggcaagac aacttacact acacaatcta agttgttgtc acttttcaag ttatctgcgg 720
agacgttaag ggattttaat gaagctagat ttgcacttgg taacatgact gatagtgcta 780
ataaatctaa agctttggag gtctacaaat cgacactaac ttactatgaa atcaatatca 840
```

```
gtcgaattgg aaaagatttt tggcatatta aaatcaactc cgaatattac ttttgaatca 900
gttgtttcta aatacaaatt gactggtgtt aatacagttg atactgccaa tgctgatgtg 960
atcaacgaga caatgtttga cgatttgtcc aaggcaattt cctcatacct atactccctc 1020
atatctataa ttttttccgga ggatattaaa ggtcaaggta caagtgaagg tcaacaaaca 1080
agtggaggtc aggatacaaa tgagacaatt ttctcatacc tatactccct catatctata 1140
attttttccgg aggatattaa ag                                       1162
```

<210> 107
<211> 984
<212> DNA
<213> Babesia microti

<400> 107
```
tgggtgagct agctgttgtc cagccttggt gtgattggac agtgtagagc tcatctgaag 60
tcttggcttg atagtgaggc tggaccatct cagctagcag ctttgaagct gttctggatg 120
cagaattttg agggaactgc aacagaggct ttctgagagg ctggatcaat tgggctactc 180
atctgtattg gtttctggtc cttttttttct gaaagcacaa acttttaaag gtaccatatg 240
tatctgcatt agcacaatgg aatgtgcagt gtgcacaggt caactaaagg ttttttcttc 300
tgtgtatgag caggtaaaag gcacctgtca actttataag tccaaacctt cgaaaatgat 360
ggcactatga catcaaaatt ttattccagg gagtccctag acccaacaac ctacatcgga 420
catgcaccta cagacatatt tacgtcgcca tggatcacga cccacatgca taacaagcgt 480
cttgttgact ttgaagttcc atttgaagca attttttgatg ataaactcat aagttattat 540
accggtacgg atgtcaacgg caagaataag gttcctgcag agcttaccaa ggcaatatgc 600
ggcaaagaag acgtgtgtga gcttaacatt accggtttat tgttgaaaga tattagtgct 660
aagaaattgg aggagtgtag gaagaagaat gcatctagtg gtactccatc tggtggtaca 720
ccttctaatg ttccagagga gtgtgtgatt aaaagcaact tacagacggt tatgaagaag 780
gatgttacta caactttgaa atcggatgat gtcagcaatt acagtgttgt atccattcac 840
ttttacattg ataacgtgtt cagacataat actgctttttg gcagaattaa gattggcaac 900
cttgatctac cagcattttc cattgggttt atccactcga tcttcgtcga gagggttctc 960
atgggtgaca agagccttgc cagt                                       984
```

<210> 108
<211> 537
<212> DNA
<213> Babesia microti

<400> 108
```
ttatggaggg ctatttagat ctcgatttga attccaagat tggtaacttt atttcagcca 60
tcgaactcac taacctgacc aacacggtaa aatcagcgag cgtccaccct ccccaactaa 120
aagtgttggc tctgaagttt ggcaacaaga tcgttgatgt cgaggagaca ggcaggacat 180
ttgttacatt tgatgagaag ttgaattcaa tagaaataat taccttcgaa aatgatggca 240
ctatgacatc aaaattttat tccagggagt ccctagactc aacaacctac attggacatg 300
cctctacgta cacacttccc gaagtgctta ccaggtcatt atgtggtaaa gaggacttat 360
gtacgcttga cattacggat ctattgttga aagagattag tgctaagaaa ttggaggagt 420
gtaggaagaa gaatgcatct agtggtactc catctggtgg tacaccttct aatgttccag 480
aggagtgtgt aattagaacc aacttacaga tggttatgaa gaagaatgct cgtgccg     537
```

<210> 109
<211> 2559
<212> DNA
<213> Babesia microti

```
<220>
<221> misc_feature
<222> (1)...(2559)
<223> n=A,T,C or G


<400> 109
ttcagaaatt aatataatta attattataa atacaaaata attaattaca aaataacgta 60
ttattagcca tttcagattt aaatacatat ttttacatat attttaattt aaactttcaa 120
attaatgtca tttttataaa cattattata attatatact ataattatca gtcatcaaat 180
aatatccaaa gttatcctct acattatatc aatcactatg gtatacaatt atataacata 240
ttagcaacac ataacaatca accttaacat atacataata ttatgactaa tcaataatta 300
tttattctcg cttgttataa tgtagaatca ttgtatacta atttattata aattattaca 360
aaatacactc ttttatttca ttttatttca gttaaattta atattttaat attatattca 420
tctttctcat gttactttaa tttatttcca tttatatctc aatttcttta tttaagagca 480
agatgttcgt tcatgtatat aataaatgtg naaattttgn actatataat aatatataca 540
tctgaatttc atttaattta gaattaatat taatgcagta aaaactagtg ccatttgtcc 600
agggattatt gaattagaaa tcttggcgat tgtggaaata tatgatttta tgcttgaaat 660
aataccgctg tcaataacaa taccaaggtc cccaatggtg ttattcatga cgtcaatagt 720
tttattaaat tcttcaattg caccattcac ttcatttaaa atgtcattaa aattagtgcc 780
aaaattctga ttattttcta atatcttgga tatcaaaaca ttagcttcta attcgtgctt 840
ttcaaatgct ttcttgatat cattaaattc gctttttattt gatataattg gtatgtgcat 900
attgtatatc tcagttaaat atcccataat tggtttaata ttatcattca gcaggtttct 960
aagtagttca gctttctttt tcttaatttc atactcaaaa ttttcagcat tttcaccttc 1020
aattgtacca agagccttat agtatatttc atcaacaatt gacttaatat cggtagagat 1080
agtggatata tcattaagca gtttaattat ttcattttta accgtactat tatttaaatc 1140
aatgtttgaa aaaatggcgt taaattccac aattttactt ttgagctcaa tttctttctt 1200
ttcaaggtaa tttttatgac caccattctt ctcatctgct tctagtatat caatactatt 1260
tttgcaggta tgaatcatag tgtccgtgat ctgttcagaa aattttgcat acatttttttt 1320
agcctcgtta aaagcgatca taagatcgtt taatgctcgt ccaaaatcac ttgaatattg 1380
attaacatca ccatttcctg caaagacatt tccacttgtt aaaaagaatg taataaaatg 1440
aattagtatt ggtctaactg acttcatcct tatccacaat tgttattgat taatatatat 1500
gtttattata gttataataa cgttgtaata atgaaatact tgaattaatc ttcagataat 1560
aaatataagt tcaagttata aattgataga cgttatattc ttgttgatta ttatgtaata 1620
acatagttaa tttattatat ggggtcaaat aattttgtct ttatttgcct gcatacgtga 1680
tgtttatggt ttatcgctta attttattgt atattgtata aaaattgctc tataataata 1740
ataatataac agtaagattt gataatgata aatattgtat gataacataa ataatactaa 1800
ttatttctac aaatatatga ctatatcaca taaataaata ctatagtata gacatatttt 1860
atataacata gatatattag tatattttat attattactt tatcgttgta taatatacta 1920
gtcatttgac tttactttta ttatggcata tcattgtgt ttatccttat tcctaataca 1980
atgttaatat aaacgtatct ccagtttata atgattgcaa gtatagatgc ttattaatat 2040
aaaagtatca ttggatatat ttgtaatatt gttaccaata tcactttttaa ctgacaatgg 2100
tatgattccc ttaataatcc attgtttcat cacacaatat agatccatat gttaaataac 2160
aatttgatta ttataaattt agatataaat aactttatttt ttataataat taattatatt 2220
aatttcttaa atttcgaatt attttaaata atattatact tcattaaatt attttacata 2280
aatttccaaa ttcttatcct taatactata cacttttact cattttttgct cactacattt 2340
ttgtttacca tattctgtat tataaggggg aaaggcacca tcacaaaagg tttcataata 2400
ttcaatacga ttatcgtcaa cttgatgact aatactggta cattctaatt tttcattttt 2460
ccattcatta ttatccttca atttgtagaa ataatagcgg gttgatttttc ctatagtagc 2520
agaaaattgt attaatattg gttttttatg agaatcact 2559


<210> 110
```

<211> 3141
<212> DNA
<213> Babesia microti

<220>
<221> misc_feature
<222> (1)...(3141)
<223> n=A,T,C or G

<400> 110
acatgttgac ttttggaaat atacgttttc ataatataaa tctcccacca ttttcattgg 60
gcataattca ctcgattacg gtagaaaagg cgattaactc tgaagatttt gacggaatac 120
aaacactttt acaagtgtct atcattgcta gttacggtcc atctggcgat tacagtagtt 180
ttgtgttcac tccagttgta acagcagaca ccaacgtttt ttacaaatta gagacggatt 240
tcaaacttga tgttgatgtt attactaaga catcactaga attgcccaca agtgttcctg 300
gctttcacta caccgaaact atttaccaag gcacagaatt gtcaaaattt agcaagcctc 360
agtgcaaact taacgatcct cctattacaa caggatcggg gttgcaaata atacatgatg 420
gtttgaataa ttcgacaatt ataaccaaca aagaagttaa tgtggatgga acagatttag 480
tttttttttga attgctccct ccatcggatg gcattcccac cttgcgatca aaattatttc 540
ccgtcctgaa atcaattcca atgatatcta ccggggttaa tgaattactg ttggaagtac 600
tcgagaaccc ctctttccct agtgcaatta gcaattacac cggactgaca ggccgactta 660
acaaattact tacagtttta gacggtattg ttgatagcgc cattagtgtc aagactacag 720
aaactgtccc tgacgacgca gaaacttcta tttcttcatt gaaatcattg ataaaggcaa 780
tacgagataa tattactacc actcgaaacg aagttaccaa agatgatgtt tatgcattga 840
agaaggccct cacttgtcta acgacacacc taatatatca ttcaagagta gatggtatat 900
cattcgacat gctgggaaca caaaaaaata aatctagccc actaggcaag atcggaacgt 960
ctatggacga tattatagcc atgttttcga atcccaatat gtatcttgtg aaggtggcgt 1020
acttgcaagc cattgaacac attttttctca tatcaaccaa atacaatgat atatttgatt 1080
acaccattga ttttagtaag cgtgaagcta ctgattctgg atcatttacc gatatattgc 1140
tcggaaacaa ggtgaaggaa tctttgtcat ttattgaggg tttgatttct gacataaaat 1200
ctcactcatt gaaagctggg gttacaggag gtatatcaag ttcatcatta tttgatgaaa 1260
tcttcgacga gttaaatttg gatcaagcaa caattagaac ccttgttgca ccattagaag 1320
aaattaaaaa tgagcttaag actatttcct ctcagaaaat agccgatgcc acagtaaccc 1380
cttctacccc caataccaat gtgaacatca aaacaattat cagcaagatt aagaaaattt 1440
tgatgataag tgagactatt tcatccacag ctcttgcacg tttatctgca gtattaagca 1500
ttcttggtag ggggacttcc acaaatgtca ttccggaacg tctaactagt atcgttgttg 1560
atttgaaatc ggcaactgtt ccacaggaag tggcgcttaa gaatggagtt tacaagttga 1620
aggaccaatt taagctaacg cacaagatga tacctgtttt tggcagcgtg caactgcaga 1680
ttccagagaa atcaacagtc gtgcagataa gtgtagtaga gcatgaaaat gataccaaaa 1740
tggcaatcat caccccttgat gatcattcga aattgacttt ggaaagggtg attctttcag 1800
aaacccctac tgttgttggt ttaacccaca ccacacaaga tccactggat gtattgctat 1860
caatatttgt caagatggat aatacaacgg atgatggggt tatggagggc tatttagatc 1920
tcgatttgaa ttccaagatt ggtactttta tttcggccat cgaactcatt gacttgacca 1980
cccggtaaat tcagcgagcg tccaccntcc ccaactaaaa gtgttggctc tgaagtttgg 2040
caccaagatc gttgatgtcg aggagacagg caggacattt gttacatttg atgagaagtt 2100
gaattcaata gaaataatta ccttcgaaaa tgatggcact tatgacatca aaattttatt 2160
ccagggagtc cctagaccca acaacctaca tcggacatgc acctacagac atatttacgt 2220
cgccatggat cacgacccac atgcataaca agcgtcttgt tgactttgaa gttccatttg 2280
aagcaatttt tgatgataaa ctcataagtt attataccgg tacggatgtc aacggcaaga 2340
ataaggttcc tgcagagctt accaaggcaa tatgcggcaa agaagacgtg tgtgagctta 2400
acattaccgg tttattgttg aaagatatta gtgctaagaa attggaggag tgtaggaaga 2460
agaatgcatc tagtggtact ccatctggtg gtacaccttc taatgttcca gaggagtgtg 2520
tgattaaaag caacttacag acggttatga agaaggatgt tactacaact ttgaaatcgg 2580
atgatgtcag caattacagt gttgtatcca ttcactttta cattgataac gtgttcagac 2640

```
ataatactgc ttttggcaga attaagattg gcaaccttga tctaccagca ttttccattg 2700
ggtttatcca ctcgatcttc gtcgagaggg ttctcatggg tgacaagagc cttgccagtg 2760
ttggcattat aactaactac ggtccaagtg gagactatga gttgttgaga tacatgcaag 2820
ttgaggaagg gaagaattat ttcaaactcg tacaggggcc agaaataaca gctgattata 2880
ttggatctgg gttgactaaa cacaagaggc tgaccatgaa tggcgcctcc accggttcaa 2940
ttggatttga aaccaactac aaggaatcga tactcttcaa tgagtttatg cgtccaacca 3000
acaagatagt caccctcttc tatacggata gtgaaactgt caatcttatc aagctgcact 3060
cattggagaa tgtaaagcat ggtgttactt attcaattta cggtgccttc ccaattgaag 3120
aatcatctcc tgaaagttca t                                         3141
```

<210> 111
<211> 1134
<212> DNA
<213> Babesia microti

<400> 111
```
acaggctcac tctgactttg gcaacaaaca ctagaggagg cgcaggtacc gatgccacaa 60
gtgtgagtat agcaaattca atacctactt cagcagcaac cgccgctcaa tcaacaacag 120
ctgctacatc aacaacagct gctacatcaa caacatctgc tacatcaaca acatctgcta 180
catcaacaac agctaccaca tcaacaacaa ctgccacatc aacaacaact gccacatcaa 240
caacagctac cacatcaaca acagctgcca tcaacaat ttctccgtct ctggagacca 300
cacaagatgt tgctgtcaca aatattgtga atcttaacat aaacgaaata ggatttgttg 360
atcaagttcc agagggtctt tcttctagtt acgttttttc tactgatgga atctttacca 420
aagttacccc agctacaggg ttttcaattg gttgtgtaat atttggcaat caattaattc 480
cacagtccat ggatgttatc actaggaccg tttcatacac cactaaatat cctttgattg 540
ttgttaggat tcaagataag acttcgagtt ctacttcaac cgtttactat gagcaatctg 600
gtttacaatc tagcaaattt gttttgaggg atgacccaga atttacatcc caactaacaa 660
gttctttcta gccgggtggt ggtagcacac acctttaatc ccagcatttg ggaggcagag 720
gcaggtggat gtctgtgagt tcgaggccag cctgatctat agcctgagtt ccaggacagg 780
ctccaaagct accaagaaac cctgtcttgg aaaagcaaaa aacaaacaaa caaaattccc 840
agagctctca cggtcttatt gtctctggta ataaatacca ccactggcat taacctcact 900
aatccccagg catttccccc tttctcttct gtttattttt tgttttttcc ccagacacgg 960
tttccctgtt tagtcatggc tatactggaa ctaggtttgt acatgaggtt ggccttgaac 1020
tcaaagattc acctgcctgg gaattagagg tgttcaccac catgctctgc tggcatttct 1080
taatccaatt aatttgacat taaattaaca atcaaaacct caggggaaaa aaac        1134
```

<210> 112
<211> 3011
<212> DNA
<213> Babesia microti

<400> 112
```
ctcgtgccga atgtcatttta tgatctaata atattgtatt atctctaata ttatggtata 60
atagatactg tgaaaataaa ttcaactgga gataaggaaa ccatttgtat agatatttta 120
tacaaattat tatgaaataa tctaaataaa tgacaaaaaa tcgattatac aaatcacatt 180
aatgacaaac aaacttgtat acatatattg attaacatta caaaactaaa ttataatatt 240
tagattgata attgttataa tacttaacaa tattctactt tttaatataa ttttttattc 300
aataatatac tctttcatat tttgtactat tttatataat catatatatt atataattat 360
atatatttga taattgaata tatcaataat gatgatatac atgaatatgc atatataccc 420
catataatgt tattatattt agtgcttaca ttattaatta taaatatatt taaataatta 480
aataataatg aaaattaaca tagacaatat aatattaatc aatttgataa tattattgaa 540
tcgtaatgta gtatattgtg tggataaaaa tgatgtttca ttatggaaat caaaacctat 600
aacaactgtc agtaccacta atgatactat tacaaataaa tacactagta ctgtaattaa 660
tgccaatttt gctagctacc gtgaatttga ggatagggaa cctttaacaa taggatttga 720
```

```
atacatgatc gataaatcac aacaagataa attatcacat ccaaataaaa ttgataaaat 780
caaaatttct gattatataa ttgaatttga tgacaatgct aaattaccaa ctggtagtgt 840
taatgatata tccatcatta cttgcaagca taataatcca gtattaatta gattctcatg 900
tttaatagaa ggatctatct gctattattt ctacttattg aataatgata caaataaatg 960
gaataatcac aaattaaaat atgataaaac atacaatgaa catactgaca ataatggtat 1020
taattattat aaaatcgatt atagtgaatc tacagaacct actaccgaat ctactacctg 1080
tttttgtttt cgcaaaaaaa atcataaatc tgagcgtaaa gaattagaaa attataaata 1140
tgagggtaca gaattagcaa gaatacattg taataaaggg aaatgtgtaa aattgggtga 1200
cattaagata aaggataaga atttggaaat ttatgtgaaa cagttaatgt ctgtaaatac 1260
tccagtaaat tttgacaacc ctacatcgat taatctacca actgtcagta ctaccaatga 1320
tactattaca aataaataca ctggtactat aattaatgcc aatattgttg agtactgtga 1380
atttgaggat gaacctttaa caatagggtt tagatacact atagataaat cacaacaaaa 1440
taaattatca catccaaata aaattgataa aatcaaattt tttgattata taattgaatt 1500
tgatgatgat gttaaattac caacaattgg tactgtcaat attatatata tctatacttg 1560
cgagcataat aatccagtat tagttgaatt tatagtttct atagaagaat cttactactt 1620
ttacttctac tcaatgaata atgatacaaa taaatggaat aatcataaaa taaaatatga 1680
caaaagattt aataaacata ctgacatgaa tggtattaat tgttatgaat atgtacttcg 1740
taaatgcagt cttatactc gtaaaaatga atatgagcat aaagaattag caagaataca 1800
ttgtaatgaa gaaaaatgtg taaatgtaaa ggtacgataa cattgagaaa aagaatttgg 1860
aaatttatgt aaaataattt aacgaagtgt aatatgtaaa atagtttaat gaagtataat 1920
attatttaaa ataattcaaa atttcagaaa ttaatataat taattattat aaatacaaaa 1980
taattaatta caaaataacg tattattagc catttcagat ttaaatacat attttttacat 2040
atattttaat ttaaactttc aaattaatgt cattttttata aacattatta taattatata 2100
ctataattat cagtcatcaa ataatatcca aagttatcct ctacattata tcaatcacta 2160
tggtatacaa ttatataaca tattagcaac acataacaat aaaccttaac atatacataa 2220
tattatgact aatcaataat tatttattct cgcttgttat aatgtagaat cattgtatac 2280
taatttatta taaattatta taaaatacat tcttttattt catttttattt cagttaaatt 2340
taatattta atattatatt catctttctc atgttacttt aatttattc catttatatc 2400
tcaatttctt tatttaagag caagatgttc gttcatgtat ataataaatg tgtaaatttt 2460
gtactatata ataatatata catctgaatt tcatttaatt tagaattaat attaatgcag 2520
taaaaactaa tgccatttgt ccagggatta ttgctttaga aatcttggcg attgtggaaa 2580
tatatgattt tatgcttgaa ataataccgc tgtcaataac aataccaagg tccccaatgg 2640
tgttattcat gacgtcaata gtttttattaa attcttcaat tgcaccattc acttcccct 2700
aaacaaagac tcaaaatctt catctatact agccagctct atcgcaaaag cctccgcagc 2760
tatcactaat gaaagtggaa ctaaaaaact actgtcaata accaatacta caagcactgg 2820
cgggaaaacc ccttatgcct tagaaaactg tatatctaag gatgaaaact caaataatat 2880
accttcggtt tcccctaaca cgccattgat ggatagggtt actaaaacct gcctggaata 2940
ttctggcgat tttgaccctg actcatgcct atgggatgat accataggca aagctcaaat 3000
ccatattcct a                                                         3011
```

```
<210> 113
<211> 1161
<212> DNA
<213> Babesia microti

<400> 113
atgtgaatgc attgatcaag gagttgaacg ctcatattaa acagagagca acatctacaa 60
caacaattat tattgaaact aatgctaaag atgtggatga gttagtgaaa aaatttgcaa 120
caattgcatc ttttgatgat aagttcaaga acgtattctt tgataattct gttattgatg 180
aaattgtcaa aacgttggaa aagatgaagg ttgagtcaga tactgtatta cctagttgca 240
atggaatcca gaccactgaa aactctagta ctgacccata tacagtatta tcaaaactta 300
taaagaaaat taacgactcc ataatcagac ctatgacttc tcggctgatc aacaaatcct 360
ttccggagtt gtgcaagttg tttataaaaa tgcccgatgt cgactccaac aaatttatgg 420
ctttggatgt ggacataagc aacactcttg taaacaggag agtcagatat tctgatggca 480
```

```
gatttaccat tgtaagcact gggtccaatt ttagatacac attggcacca actgccgctg 540
gtcatgattt gtctctcttc tcccaattgc caatctcaat gattacggtc acatcgcctc 600
aggagcaggc acttacatct tgcgtcagtc atggtaacga attcagcata gtaagcactg 660
caggcaagac aacttacact acacaatcta agttgttgtc acttttcaag ttatctgcgg 720
agacgttaag ggattttaat gaagctagat ttgcacttgg taacatgact gatagtgcta 780
ataaatctaa agctttggag gtctacaaat cgacactaac tactatgaaa tcaatatcag 840
tcgaattgga aaagattttt ggcatattaa aatcaactcc gaatattact tttgaatcag 900
ttgtttctaa atacaaattg actggtgtta atacagttga tactgccaat gctgatgtga 960
tcaacgagac aatgtttgac gatttgtcca aggcaatttc ctcatacctaa tactccctca 1020
tatctataat ttttccggag gatattaaag gtcaaggtac aagtgaaggt caacaaacaa 1080
gtggaggtca ggatacaaat gagacaattt tctcatacct atactccctc atatctataa 1140
tttttccgga ggatattaaa g                                           1161
```

<210> 114
<211> 984
<212> DNA
<213> Babesia microti

<400> 114

```
tgggtgagct agctgttgtc cagccttggt gtgattggac agtgtagagc tcatctgaag 60
tcttggcttg atagtgaggc tggaccatct cagctagcag ctttgaagct gttctggatg 120
cagaattttg agggaactgc aacagaggct ttctgagagg ctggatcaat tgggctactc 180
atctgtattg gtttctggtc cttttttctt gaaagcacaa acttttaaag gtaccatatg 240
tatctgcatt agcacaatgg aatgtgcagt gtgcacaggt caactaaagg ttttttcttc 300
tgtgtatgag caggtaaaag gcacctgtca actttataag tccaaacctt cgaaaatgat 360
ggcactatga catcaaaatt ttattccagg gagtccctag acccaacaac ctacatcgga 420
catgcaccta cagacatatt tacgtcgcca tggatcacga cccacatgca taacaagcgt 480
cttgttgact ttgaagttcc atttgaagca attttttgatg ataaactcat aagttattat 540
accggtacgg atgtcaacgg caagaataag gttcctgcag agcttaccaa ggcaatatgc 600
ggcaaagaag acgtgtgtga gcttaacatt accggtttat tgttgaaaga tattagtgct 660
aagaaattgg aggagtgtag gaagaagaat gcatctagtg gtactccatc tggtggtaca 720
ccttctaatg ttccagagga gtgtgtgatt aaaagcaact tacagacggt tatgaagaag 780
gatgttacta caactttgaa atcggatgat gtcagcaatt acagtgttgt atccattcac 840
ttttacattg ataacgtgtt cagacataat actgcttttg gcagaattaa gattggcaac 900
cttgatctac cagcattttc cattgggttt atccactcga tcttcgtcga gagggttctc 960
atgggtgaca agagccttgc cagt                                           984
```

<210> 115
<211> 1205
<212> DNA
<213> Babesia microti

<400> 115

```
cacctggggc atggggtgta gtcacgtggg ttcctgaatg acttggaatg catagaggga 60
actgcggttg ggggaggggga cggactccgc tggggcgcgt ggcctcacct ccgggtccgg 120
tggacacggt gacctgcgcg taggtggctt ccgcggcggc cgctgggcct gagacaccgt 180
tgagcgcggc cacgcgcacg gtatagcgcg cgcccggccg caggtgcagc agcgtggcgg 240
cgcgttctcg caaccctgcc tgacgcggga cgaaggccac gcgtggcccg cagggttggc 300
atgcgcccgc cggaccgtcg cggccgcaga gcaggcacag cagcgagtag gtgacgtcgg 360
aacgaccgcc ggagtccgca ggcggcagcc accgcagtcg cagcgccagg ggggagcggc 420
tcaagctgta ctgcaggtcc cgtggcgcgg acggcggccc tgcgacatgg ggtggcgctg 480
agtgggggccg ggaggggacg gaagcactag aggtgccggg cgcaggggc atgagcaccc 540
tgcatgggta gcagtatgag agccggcagt ccttgatggg gatgttggcgg gggtggggga 600
gcagccagga actgagagga gggcatgagg accatcgagg ggactgggat ggggacatgg 660
```

```
tcacctggaa cagaggactt ggaagacagg agggacattc cagccaggcc cagggagaca 720
cagagaatct tgaccccatc tcagagaatc ttgaccccat ctccaccctt ctgggttccc 780
cagattctaa agcatattta tattttcata acaaagtata tatttgaact tccatgacta 840
gtaacttatc tgcctgtgat aatttgaatg tgaatggccc ctgtaggttc atatatttga 900
acactcaggc acaagttttg aaactgtttg agaaggattt aggaataagt atgtacttga 960
gggaagtgtg tcattagagg gggattttga ggcttcaagc ccacaccagg accaggcttt 1020
tctttgtctg atgccttagg atcagagtgt aaagctctca attactgatc cagcaccatg 1080
ccaacctgct accatgcttc ccacaatgat ggtcatgagt caaccctctt aaactgtaaa 1140
caagcccccca tttaaatgct ttctttttaca aaaattgcca tggccatggt aacccttttac 1200
                                                                    1205
acaat
```

<210> 116
<211> 1919
<212> DNA
<213> Babesia microti

<400> 116
```
tagtcattag attatcatga caccaataag cttttttatct tgaagttgtt ttatatatta 60
atacaaccat agcatcataa aagctacatt tgtttttttt atcttaaccc atggtcatct 120
agtcttttttc ctttattatt catcattgat tgtccttaaa tgctcaaagc atctgcccct 180
ttaaactact tctttctaaa ttagcatata ctctatatgg tcatacctat tctgtgtaat 240
catcaggttc cctgtgcagg ggaaaggagg aacgctcaag cactgaggaa tcatcccgct 300
gtgtgataac gttgatggaa gacaagtgat acagttagtt gttcaaacaa ataagcatat 360
ttaaggggaa gaatagtgtc gtactaacta aaatctaatt tgaccataat acgcacatta 420
gtttgtttgt gctcaatttt tttaatgaat caggcccccg atttatattt gtgaaagtcc 480
atgtgggagc gtaaggatgg gatagtttat ttacagtagc ttctctgggg aaaggaaagc 540
aaagccccaa ctgtatagag ttcattggag ctgtcaccta cgccctgcc ttcctgtccc 600
tttagagtgc ctcagtttgc tgtgtggcaa gagtctctcc ctgctcctgc tctcctagcc 660
ccctctgcct gcctcccca gttgatgcga gagtccactg ttggagagtt aactctaatc 720
ttacacctgg ggagagctac tggaaattaa ttttccatgt aactgtcttt gagttctagc 780
aggctttaga ttttagaagt ttttgtgtgt gtgtgtgtgt gtgtgtgtgt gtgtgtgtgt 840
gtgtgtgtgt gtgtgtgtgt atgaagaggg cacagttttt gcctttgatt gcctctggaa 900
tgttccattt cttgtgatta tcaaatagca gcatcagagg cagagtatgg ctcatttttcc 960
cccgctatct ccttaaagat tataagatga tcctggtatg tatctgcttc gtgaacattg 1020
aagatctggg aacacaaaaa aataaatcta gcccactagg caagatcgga acgtctatgg 1080
acgatattat agccatgttt tcgaatccca atatgtatct tgtgaaggtg gcgtacttgc 1140
aagccattga acacattttt ctcatatcaa ccaaatacaa tgatatattt gattacacca 1200
ttgattttag taagcgtgaa gctactgatt ctggatcatt taccgatata ttgctcggaa 1260
acaaggtgaa ggaatctttg tcatttattg agggtttgat ttctgacata aaatctcact 1320
cattgaaagc tggggttaca ggaggtatat caagttcatc attatttgat gaaatcttcg 1380
acgagttaaa tttggatcaa gcaacaatta gaaccttgt tgcaccatta gaagaaatta 1440
aaaatgagct taagactatt tcctctcaga aaatagccga tgccacagta acccccttcta 1500
cccccaatac caatgtgaac atcaaaacaa ttatcagcaa gattaagaaa attttgatga 1560
taagtgagac tatttcatcc acagctcttg cacgtttatc tgcagtatta agcattcttg 1620
gtaggggggac ttccacaaat gtcattccgg aacgtctaac tagtatcgtt gttgatttga 1680
aatcggcaac tgttccacag gaagtggcgc ttaagaatgg agtttacaag ttgaaggacc 1740
aatttaagct aacgcacaag atgatacctg tttttggcag cgtgcaactg cagattccag 1800
agaaatcaac agtcgtgcag ataagtgtag tagagcatga aaatgatacc aaaatggcaa 1860
tcatcaccct tgatgatcat tcgaaattga ctttggaaag ggtgattctt tcagaaacc 1919
```

<210> 117
<211> 4722
<212> DNA
<213> Babesia microti

<400> 117
tgactggata tcgccaattg tattgtaaca ggtggttgct atggaaatat taccaagctg 60
cagcgcttta tcgccgagtc tcttccacct ttcaatattt atgggttcaa tttgcatttt 120
agacgcggat tttctgggcg agtttacctc agatgaatta tttggtgatt tcaaggcacc 180
tttataaaat gtctcataag aatcaccatt caattgttcc agacactaaa tatttgtcaa 240
cttactaact caacatcacc ggtgctcaaa gccaattcaa atttccttga tgcatttacc 300
gttatggcaa ctgctagctg tatattaccc atagcttcaa ctattacgct tatcctttcc 360
cgtaaatggg ttggtatttc agcaaccata tcaagtacta atccccaatt attctccaac 420
attgcagtct aaatgaattg attggattac attcaacttc aaataagttt cagttaggtt 480
gtatgacaga acatttccat ctcgatcaat aagatatatc ttgcttgttt caatggaata 540
gccgagaatg tacagtttac gatctagata agcgtgcgga tcaggcacgc cagttgtgta 600
caaatagagt ctcagaccaa ctgttgtgta aataaatgta tcacaaaccc atactccact 660
cacaatacgt tctgtaatct aggttaaaca acaatttaac ctcagtatcc agctcaaatg 720
ttgatggtac tccctcgtca tcctgaggcg tattggcagc gactgatacc aaaaaggaat 780
tatgatcata ttcttctagt tacgtttttt ctactgatgg aatctttacc aaagttaccc 840
cagctacagg gttttcaatt ggttgtgtaa tatttggcaa tcaattaatt ccacagtcca 900
tggatgttat cactaggacc gtttcataca ccactaaata tcctttgatt gttgttagga 960
ttcaagataa gacttcgagt tctacttcaa ccgtttacta tgagcaatct ggtttacaat 1020
ctagcaaatt tgttttgagg gatgacccag aatttattat tcctcaaaat cgaagtagta 1080
cttatacagt caatgacata acatataaat catttgatat ttctagtgcc gatgataacg 1140
aatttttaaa aatatcatta agtgatggga gcatgttgta caccaataat ccagattcca 1200
aaatttacat cagcgaagtt aaggttggtg agataacaat accaataaat ataacatcac 1260
aatatacact gatcaaatta tcatttaatg gtgaattggt tgagttgtat actacaggat 1320
gtttcggtga acataatatt aaaaagttta ggaaagtagg ttctacctat aatgatatat 1380
ctaacgcttt tgacattgtg ccttggattc cagctcattt tgtcgtgact cagaaagtgg 1440
attttctat acctttgat ttatttgaat caaattatca cagcatttta ctaccagcag 1500
gtgtgaacca ttctatccac attaatactg aaacagggaa tgtggattca gttgttttt 1560
tcttgaatcc actggccaag cacatgttga cttttggaaa tatacgtttt cataatataa 1620
atctcccacc attttcattg ggcataattc actcgattac ggtagaaaag gcgattaact 1680
ctgaagattt tgacggaata caaacacttt tacaagtgtc tatcattgct agttacggtc 1740
catctggcga ttacagtagt tttgtgttca ctccagttgt aacagcagac accaacgttt 1800
tttacaaatt agagacggat ttcaaacttg atgttgatgt tattactaag acatcactag 1860
aattgcccac aagtgttcct ggctttcact acaccgaaac tatttaccaa ggcacagaat 1920
tgtcaaaatt tagcaagcct cagtgcaaac ttaacgatcc tcctattaca acaggatcgg 1980
ggttgcaaat aatacatgat ggtttgaata attcgacaat tataaccaac aaagaagtta 2040
atgtggatgg aacagattta gttttttttg aattgctccc tccatcggat ggcattccca 2100
ccttgcgatc aaaattattt cccgtcctga aatcaattcc aatgatatct accggggtta 2160
atgaattact gttggaagta ctcgagaacc cctctttccc tagtgcaatt agcaattaca 2220
ccggactgac aggccgactt aacaaattac ttacagtttt agacggtatt gttgatagcg 2280
ccattagtgt caagactaca gaaactgtcc ctgacgacgc agaaacttct atttcttcat 2340
tgaaatcatt gataaaggca atacgagata atattactac cactcgaaac gaagttacca 2400
aagatgatgt ttatgcattg aagaaggccc tcacttgtct aacgacacac ctaatatatc 2460
attcaagagt agatggtata tcattcgaca tgctgggaac acaaaaaaat aaatctagcc 2520
cactaggcaa gatcggaacg tctatggacg atattatagc catgttttcg aatcccaata 2580
tgtatcttgt gaaggtggcg tacttgcaag ccattgaaca cattttttctc atatcaacca 2640
aatacaatga tatatttgat tacaccattg attttagtaa gcgtgaagct actgattctg 2700
gatcatttac cgatatattg ctcggaaaca aggtgaagga atctttgtca tttattgagg 2760
gtttgatttc tgacataaaa tctcactcat tgaaagctgg ggttacagga ggtatatcaa 2820
gttcatcatt atttgatgaa atcttcgacg agttaaattt ggatcaagca acaattagaa 2880
cccttgttgc accattagaa gaaattaaaa atgagcttaa gactatttcc tctcagaaaa 2940
tagccgatgc cacagtaacc ccttctaccc ccaataccaa tgtgaacatc aaaacaatta 3000
tcagcaagat taagaaaatt ttgatgataa gtgagactat ttcatccaca gctcttgcac 3060
gtttatctgc agtattaagc attcttggta gggggacttc cacaaatgtc attccggaac 3120

```
gtctaactag tatcgttgtt gatttgaaat cggcaactgt tccacaggaa gtggcgctta 3180
agaatggagt ttacaagttg aaggaccaat ttaagctaac gcacaagatg atacctgttt 3240
ttggcagcgt gcaactgcag attccagaga aatcaacagt cgtgcagata agtgtagtag 3300
agcatgaaaa tgataccaaa atggcaatca tcacccttga tgatcattcg aaattgactt 3360
tggaaagggt gattctttca gaaaccccta ctgttgttgg tttaacccac accacacaag 3420
atccactgga tgtattgcta tcaatatttg tcaagatgga taatacaacg gatgatgggg 3480
ttatggaggg ctatttagat ctcgatttga attccaagat tggtaacttt atttcggcca 3540
tcgaactcac tgacctgacc aacacggtaa aatcagcgag cgtccaccct ccccaactaa 3600
aagtgttggc tctgaagttt ggcaacaaga tcgttgatgt cgaggagaca ggcaggacat 3660
ttgttacatt tgatgagaag ttgaattcaa tagaaataat taccttcgaa aatgatggca 3720
ctatgacatc aaaattttat tccagggagt ccctagaccc aacaacctac atcggacatg 3780
cacctacaga catatttacg tcgccatgga tcacgaccca catgcataac aagcgtcttg 3840
ttgactttga agttccattt gaagcaattt ttgatgataa actcataagt tattataccg 3900
gtacggatgt caacggcaag aataaggttc ctgcagagct taccaaggca atatgcggca 3960
aagaagacgt gtgtgagctt aacattaccg gtttattgtt gaaagatatt agtgctaaga 4020
aattggagga gtgtaggaag aagaatgcat ctagtggtac tccatctggt ggtacacctt 4080
ctaatgttcc agaggagtgt gtgattaaaa gcaacttaca gacggttatg aagaaggatg 4140
ttactacaac tttgaaatcg gatgatgtca gcaattacag tgttgtatcc attcactttt 4200
acattgataa cgtgttcaga cataatactg cttttggcag aattaagatt ggcaaccttg 4260
atctaccagc attttccatt gggtttatcc actcgatctt cgtcgagagg gttctcatgg 4320
gtgacaagag ccttgccagt gttggcatta taactaacta cggtccaagt ggagactatg 4380
agttgttgag atacatgcaa gttgaggaag ggaagaatta tttcaaactc gtacaggggc 4440
cagaaataac agctgattat attggatctg ggttgactaa acacaagagg ctgaccatga 4500
atggcgcctc caccggttca attggatttg aaaccaacta caaggaatcg atactcttca 4560
atgagtttat gcgtccaacc aacaagatag tcaccctctt ctatacggat agtgaaactg 4620
tcaatcttat caagctgcac tcattggaga atgtaaagca tggtgttact tattcaattt 4680
acggtgcctt cccaattgaa gaatcatctc ctgaaagttc at                     4722
```

```
<210> 118
<211> 2215
<212> DNA
<213> Babesia microti

<400> 118
gttcctactt tgtcatcatt ggtcaagttg ttcagtgaag ttatgctgag agtgaaggat 60
gcgtcttcca cagaggctac catacgcatg ttcctccgtt tcaacgcatt tataaaattt 120
ttgaatgagg agaaatccag aggtgacaaa agtgcgttga atgatgaggg attgatgagg 180
tttatatcga tgaccagtgg atttatcgat gaccttgaat tagtttaga tgagttatcc 240
aagcacagtt tgcttataaa taacgaaggt gccaagagca tgctatcctc tctcatacta 300
agcttccgtt atattaatca cataagaaat ttgatcaatg gtatttacct tggattgaat 360
aacccatcat cgtccattgg tgagacagca caagaaacaa ctgaaccctc cactcccact 420
cccactccca gcacacagac aatcctgaaa ccgaagggat ccgagataag gggctatata 480
ataaaagttg atcaaacagc taatctcatc acattcatag atgcattgat caaggagttg 540
aacgttcata ttaaacagac aacaacttcg tctgttgttg gcactaaaga aactaatggc 600
actaccagtg gttctcctga aagcaatccc ggttccaccg attcaggttc tattcaagct 660
gaggtggcgg aactattgaa aaaatttgca acaattgcat cttttgacga gaagttcacg 720
aacttacaca ttaataaacc ttttgccgat gcacttatta aaaggttgaa tgaaataaag 780
gctgaactat catctaatag tggaacccct cccaaattac ccgatatatc atgtttaaga 840
ctatcagaaa ttgtgcagaa acttaaccgt ttaatcaaat ttaatacttc tcggctgatc 900
aacaaatcct ttccggagtt gtgcaagttg tttataaaaa tgcccgatgt cgactccaac 960
aaatttatgg ctttggatgt ggacataagc aacactcttg taaacaggag agtcagatat 1020
tctgatggta gatttaccat tgtaagcact gggtccaatt ttagatacac attggcacca 1080
actgccgctg gtcatgattt gtctctcttc tcccaattgc caatctcaat gattacggtc 1140
acatcgcctc aggagcaggc acttacatct tgcgtcagtc atggtaacga attcagcata 1200
```

```
gtaagcactg caggcaagac aacttacact acacaatcta agttgttgtc actttttcaag 1260
ttatctgcgg agacgttaag ggattttaat gaagctagat ttgcacttgg taacatgact 1320
gatagtgcta ataaatctaa agctttggag gtctacaaat cgacactaac tactatgaaa 1380
tcaatatcag tcgaattgga aaagattttt ggcatattaa aatcaactcc gaatattact 1440
tttgaatcag ttgtttctaa atacaaattg actggtgtta atacagttga tactgccaat 1500
gctgatgtga tcaacgagac aatgtttgac gatttgtcca aggcaatttc ctcatcatccta 1560
tactccctca tatctataat ttttccggag gatattaaag gtcaaggtac aagtgaaggt 1620
caacaaacaa gtgaaggtca acaaacaagt gaaggtcaac aaacaagtgg agatcaggat 1680
acaagtggag gtcaggatac aaatgagaca attttctcat acctatactc cctcatatct 1740
ataatttttc cggaggatat taaaggtcaa ggtacaagtg ctcaattatt ggagtataga 1800
actcaattgg catctctgag caagatcaaa tctctcagaa aaaaaataaa aagaaggctc 1860
tgacattcgt atcctacttt ctgtagtttg tcttatgtac caagtaccag tgtttttcatag 1920
ttctgtagga atgaattcct attaaacatg gtctcctttt ctcagagttt gttcatttag 1980
ttgtttccac tacttttcag ttgctggacc gaagttctta tgggtaatta catttatcct 2040
cattacttct caccctcaat tttaatgtta tatacacttt tcataacacc tagagtttcc 2100
cctccctgcc tttctcccttt tctccctacc tcccctcaac ccaccacaca ctgaggagtg 2160
aatactcctc agaaatgcta atgcctccct ggcacattaa gttgaggcaa ggcca    2215
```

<210> 119
<211> 3002
<212> DNA
<213> Babesia microti

<400> 119

```
agtgattctc ataaaaaacc aatattaata caattttctg ctactatagg aaaatcaacc 60
cgctattatt tctacaaatt gaaggataat aatgaatgga aaaatgaaaa attagaatgt 120
accagtatta gtcatcaagt tgacgataat cgtattgaat attatgaaac cttttgtgat 180
ggtgcctttc ccccttataa tacagaatat ggtaaacaaa aatgtagtga gcaaaaatga 240
gtaaaagtgt atagtattaa ggataagaat ttggaaattt atgtaaaata atttaatgaa 300
gtataatatt atttaaaata attcgaaatt taagaaatta atataattaa ttattataaa 360
aataaagtta tttatatcta aatttataat aatcaaattg ttatttaaca tatggatcta 420
tattgtgtga tgaaacaatg gattattaag ggaatcatac cattgtcagt taaaagtgat 480
attggtaaca atattacaaa tatatccaat gatactttta tattaataag catctatact 540
tgcaatcatt ataaactgga gatacgttta tattaacatt gtattaggaa taaggataaa 600
cacaaatgat atgccataat aaaagtaaag tcaaatgact agtatatatt acaacgataa 660
agtaataata taaaatatac taatatatct atgttatata aaatatgtct atactatagt 720
atttatttat gtgatatagt catatatttg tagaaataat tagtattatt tatgttatca 780
tacaatattt atcattatca aatcttactg ttatattatt attattatag agcaattttt 840
atacaatata caataaaatt aagcgataaa ccataaacat cacgtatgca ggcaaataaa 900
gacaaaatta tttgacccca tataataaat taactatgtt attacataat aatcaacaag 960
aatataacgt ctatcaattt ataacttgaa cttatattta ttatctgaag attaattcaa 1020
gtatttcatt attacaacgt tattataact ataataaaca tatatattaa tcaataacaa 1080
ttgtggataa ggatgaagtc agttagacca atactaattc atttttattac attctttttta 1140
acaagtggaa atgtctttgc aggaaatggt gatgttaatc aatattcaag tgattttgga 1200
cgagcattaa acgatcttat gatcgctttt aacgaggcta aaaaaatgta tgcaaaattt 1260
tctgaacaga tcacggacac tatgattcat acctgcaaaa atagtattga tatactagaa 1320
gcagatgaga agaatggtgg tcataaaaat taccttgaaa agaaagaaat tgagctcaaa 1380
agtaaaattg tggaatttaa cgccattttt tcaaacattg atttaaataa tagtacggtt 1440
aaaaatgaaa taattaaact gcttaatgat atatccacta tctctaccga tattaagtca 1500
attgttgatg aaatatacta taaggctctt ggtacaattg aaggtgaaaa tgctgaaaat 1560
tttgagtatg aaattaagaa aaagaaagct gaactactta gaaacctgct gaatgataat 1620
attaaaccaa ttatgggata tttaactgag atatacaata tgcacatacc aattatatca 1680
aataaaagcg aatttaatga tatcaagaaa gcatttgaaa agcacgaatt agaagctaat 1740
gttttgatat ccaagatatt agaaaataat cagaattttg gcactaattt taatgacatt 1800
```

```
ttaaatgaag tgaatggtgc aattgaagaa tttaataaaa ctattgacgt catgaataac 1860
accattgggg accttggtat tgttattgac agcggtatta tttcaagcat aaaatcatat 1920
atttccacaa tcgccaagat ttctaattca ataatccctg gacaaatggc actagttttt 1980
actgcattaa tattaattct aaattaaatg aaattcagat gtatatatta ttatatagta 2040
caaaatttac acatttatta tatacatgaa cgaacatctt gctcttaaat aaagaaattg 2100
agatataaat ggaaataaat taaagtaaca tgagaaagat gaatataata ttaaaatatt 2160
aaatttaact gaaataaaat gaaataaaag agtgtatttt gtaataattt ataataaatt 2220
agtatacaat gattctacat tataacaagc gagaataaat aattattgat tagtcataat 2280
attatgtata tgttaaggtt tattgttatg tgttgctaat atgttatata attgtatacc 2340
atagtgattg atataatgta gaggataact ttggatatta tttgatgacc gataattata 2400
gtatataatt ataataatgt ttataaaaat gacattaatt tgaaagttta aattaaaata 2460
tatgtaaaaa tatgtattta aatctgaaat ggctaataat acgttatttt gtaattaatt 2520
attttgtatt tataataatt aattatatta atttctgaaa ttttgaatta ttttaaataa 2580
tattatactt cattaaacta ttttacatat tacacttcgt taaattattt tagataaatt 2640
tccaattttt tattcccaat gttatctacc tttacattta cacatttttc ttcattacaa 2700
tgtattcttg ctaattcttt atgctcatat tcatttttac aagtataaga actgcattta 2760
ccaagtacat attcataata attaataccc attcatgtca gtatgttcat taaatcttgt 2820
atcatatttt attttatgat tattccattt atttgtatca ttattcattg aagtagaagt 2880
aattgtagta agatccttct atagaaacta taaattcaac taatactgga ttattatgct 2940
tgcaagtata gatatatata atattgacag taccaattgt tgttaattta acactcgtgc 3000
cg                                                                 3002
```

<210> 120
<211> 1312
<212> PRT
<213> Babesia microti

<400> 120

```
Ser Tyr Ser Ser Ser Tyr Val Phe Ser Thr Asp Gly Ile Phe Thr Lys
                  5                   10                  15

Val Thr Pro Ala Thr Gly Phe Ser Ile Gly Cys Val Ile Phe Gly Asn
              20                  25                  30

Gln Leu Ile Pro Gln Ser Met Asp Val Ile Thr Arg Thr Val Ser Tyr
          35                  40                  45

Thr Thr Lys Tyr Pro Leu Ile Val Val Arg Ile Gln Asp Lys Thr Ser
      50                  55                  60

Ser Ser Thr Ser Thr Val Tyr Tyr Glu Gln Ser Gly Leu Gln Ser Ser
65                  70                  75                  80

Lys Phe Val Leu Arg Asp Asp Pro Glu Phe Ile Ile Pro Gln Asn Arg
                  85                  90                  95

Ser Ser Thr Tyr Thr Val Asn Asp Ile Thr Tyr Lys Ser Phe Asp Ile
              100                 105                 110

Ser Ser Ala Asp Asp Asn Glu Phe Leu Lys Ile Ser Leu Ser Asp Gly
          115                 120                 125

Ser Met Leu Tyr Thr Asn Asn Pro Asp Ser Lys Ile Tyr Ile Ser Glu
      130                 135                 140
```

Val Lys Val Gly Glu Ile Thr Ile Pro Ile Asn Ile Thr Ser Gln Tyr
145   150   155   160

Thr Leu Ile Lys Leu Ser Phe Asn Gly Glu Leu Val Glu Leu Tyr Thr
              165   170   175

Thr Gly Cys Phe Gly Glu His Asn Ile Lys Lys Phe Arg Lys Val Gly
          180   185   190

Ser Thr Tyr Asn Asp Ile Ser Asn Ala Phe Asp Ile Val Pro Trp Ile
          195   200   205

Pro Ala His Phe Val Val Thr Gln Lys Val Asp Phe Ser Ile Pro Phe
      210   215   220

Asp Leu Phe Glu Ser Asn Tyr His Ser Ile Leu Leu Pro Ala Gly Val
225   230   235   240

Asn His Ser Ile His Ile Asn Thr Glu Thr Gly Asn Val Asp Ser Val
              245   250   255

Val Phe Phe Leu Asn Pro Leu Ala Lys His Met Leu Thr Phe Gly Asn
          260   265   270

Ile Arg Phe His Asn Ile Asn Leu Pro Pro Phe Ser Leu Gly Ile Ile
          275   280   285

His Ser Ile Thr Val Glu Lys Ala Ile Asn Ser Glu Asp Phe Asp Gly
      290   295   300

Ile Gln Thr Leu Leu Gln Val Ser Ile Ile Ala Ser Tyr Gly Pro Ser
305   310   315   320

Gly Asp Tyr Ser Ser Phe Val Phe Thr Pro Val Val Thr Ala Asp Thr
          325   330   335

Asn Val Phe Tyr Lys Leu Glu Thr Asp Phe Lys Leu Asp Val Asp Val
          340   345   350

Ile Thr Lys Thr Ser Leu Glu Leu Pro Thr Ser Val Pro Gly Phe His
      355   360   365

Tyr Thr Glu Thr Ile Tyr Gln Gly Thr Glu Leu Ser Lys Phe Ser Lys
      370   375   380

Pro Gln Cys Lys Leu Asn Asp Pro Pro Ile Thr Thr Gly Ser Gly Leu
385   390   395   400

Gln Ile Ile His Asp Gly Leu Asn Asn Ser Thr Ile Ile Thr Asn Lys
              405   410   415

Glu Val Asn Val Asp Gly Thr Asp Leu Val Phe Phe Glu Leu Leu Pro
          420   425   430

Pro Ser Asp Gly Ile Pro Thr Leu Arg Ser Lys Leu Phe Pro Val Leu
    435   440   445

Lys Ser Ile Pro Met Ile Ser Thr Gly Val Asn Glu Leu Leu Leu Glu
    450   455   460

Val Leu Glu Asn Pro Ser Phe Pro Ser Ala Ile Ser Asn Tyr Thr Gly
465   470   475   480

Leu Thr Gly Arg Leu Asn Lys Leu Leu Thr Val Leu Asp Gly Ile Val
            485   490   495

Asp Ser Ala Ile Ser Val Lys Thr Thr Glu Thr Val Pro Asp Asp Ala
            500   505   510

Glu Thr Ser Ile Ser Ser Leu Lys Ser Leu Ile Lys Ala Ile Arg Asp
            515   520   525

Asn Ile Thr Thr Thr Arg Asn Glu Val Thr Lys Asp Asp Val Tyr Ala
    530   535   540

Leu Lys Lys Ala Leu Thr Cys Leu Thr Thr His Leu Ile Tyr His Ser
545   550   555   560

Arg Val Asp Gly Ile Ser Phe Asp Met Leu Gly Thr Gln Lys Asn Lys
            565   570   575

Ser Ser Pro Leu Gly Lys Ile Gly Thr Ser Met Asp Asp Ile Ile Ala
            580   585   590

Met Phe Ser Asn Pro Asn Met Tyr Leu Val Lys Val Ala Tyr Leu Gln
    595   600   605

Ala Ile Glu His Ile Phe Leu Ile Ser Thr Lys Tyr Asn Asp Ile Phe
    610   615   620

Asp Tyr Thr Ile Asp Phe Ser Lys Arg Glu Ala Thr Asp Ser Gly Ser
625   630   635   640

Phe Thr Asp Ile Leu Leu Gly Asn Lys Val Lys Glu Ser Leu Ser Phe
            645   650   655

Ile Glu Gly Leu Ile Ser Asp Ile Lys Ser His Ser Leu Lys Ala Gly
            660   665   670

Val Thr Gly Gly Ile Ser Ser Ser Ser Leu Phe Asp Glu Ile Phe Asp
            675   680   685

Glu Leu Asn Leu Asp Gln Ala Thr Ile Arg Thr Leu Val Ala Pro Leu
    690   695   700

Glu Glu Ile Lys Asn Glu Leu Lys Thr Ile Ser Ser Gln Lys Ile Ala
705   710   715   720

Asp Ala Thr Val Thr Pro Ser Thr Pro Asn Thr Asn Val Asn Ile Lys
              725   730   735

Thr Ile Ile Ser Lys Ile Lys Lys Ile Leu Met Ile Ser Glu Thr Ile
              740   745   750

Ser Ser Thr Ala Leu Ala Arg Leu Ser Ala Val Leu Ser Ile Leu Gly
              755   760   765

Arg Gly Thr Ser Thr Asn Val Ile Pro Glu Arg Leu Thr Ser Ile Val
      770   775   780

Val Asp Leu Lys Ser Ala Thr Val Pro Gln Glu Val Ala Leu Lys Asn
785   790   795   800

Gly Val Tyr Lys Leu Lys Asp Gln Phe Lys Leu Thr His Lys Met Ile
              805   810   815

Pro Val Phe Gly Ser Val Gln Leu Gln Ile Pro Glu Lys Ser Thr Val
              820   825   830

Val Gln Ile Ser Val Val Glu His Glu Asn Asp Thr Lys Met Ala Ile
          835   840   845

Ile Thr Leu Asp Asp His Ser Lys Leu Thr Leu Glu Arg Val Ile Leu
      850   855   860

Ser Glu Thr Pro Thr Val Val Gly Leu Thr His Thr Thr Gln Asp Pro
865   870   875   880

Leu Asp Val Leu Leu Ser Ile Phe Val Lys Met Asp Asn Thr Thr Asp
              885   890   895

Asp Gly Val Met Glu Gly Tyr Leu Asp Leu Asp Leu Asn Ser Lys Ile
              900   905   910

Gly Asn Phe Ile Ser Ala Ile Glu Leu Thr Asp Leu Thr Asn Thr Val
              915   920   925

Lys Ser Ala Ser Val His Pro Pro Gln Leu Lys Val Leu Ala Leu Lys
          930   935   940

Phe Gly Asn Lys Ile Val Asp Val Glu Glu Thr Gly Arg Thr Phe Val
945   950   955   960

Thr Phe Asp Glu Lys Leu Asn Ser Ile Glu Ile Ile Thr Phe Glu Asn
              965   970   975

Asp Gly Thr Met Thr Ser Lys Phe Tyr Ser Arg Glu Ser Leu Asp Pro
              980   985   990

Thr Thr Tyr Ile Gly His Ala Pro Thr Asp Ile Phe Thr Ser Pro Trp
      995   1000   1005

Ile Thr Thr His Met His Asn Lys Arg Leu Val Asp Phe Glu Val Pro
    1010   1015   1020

Phe Glu Ala Ile Phe Asp Asp Lys Leu Ile Ser Tyr Tyr Thr Gly Thr
1025   1030   1035   1040

Asp Val Asn Gly Lys Asn Lys Val Pro Ala Glu Leu Thr Lys Ala Ile
        1045   1050   1055

Cys Gly Lys Glu Asp Val Cys Glu Leu Asn Ile Thr Gly Leu Leu Leu
        1060   1065   1070

Lys Asp Ile Ser Ala Lys Lys Leu Glu Glu Cys Arg Lys Lys Asn Ala
        1075   1080   1085

Ser Ser Gly Thr Pro Ser Gly Gly Thr Pro Ser Asn Val Pro Glu Glu
        1090   1095   1100

Cys Val Ile Lys Ser Asn Leu Gln Thr Val Met Lys Lys Asp Val Thr
1105   1110   1115   1120

Thr Thr Leu Lys Ser Asp Asp Val Ser Asn Tyr Ser Val Val Ser Ile
        1125   1130   1135

His Phe Tyr Ile Asp Asn Val Phe Arg His Asn Thr Ala Phe Gly Arg
        1140   1145   1150

Ile Lys Ile Gly Asn Leu Asp Leu Pro Ala Phe Ser Ile Gly Phe Ile
        1155   1160   1165

His Ser Ile Phe Val Glu Arg Val Leu Met Gly Asp Lys Ser Leu Ala
        1170   1175   1180

Ser Val Gly Ile Ile Thr Asn Tyr Gly Pro Ser Gly Asp Tyr Glu Leu
1185   1190   1195   1200

Leu Arg Tyr Met Gln Val Glu Glu Gly Lys Asn Tyr Phe Lys Leu Val
        1205   1210   1215

Gln Gly Pro Glu Ile Thr Ala Asp Tyr Ile Gly Ser Gly Leu Thr Lys
        1220   1225   1230

His Lys Arg Leu Thr Met Asn Gly Ala Ser Thr Gly Ser Ile Gly Phe
        1235   1240   1245

Glu Thr Asn Tyr Lys Glu Ser Ile Leu Phe Asn Glu Phe Met Arg Pro
        1250   1255   1260

Thr Asn Lys Ile Val Thr Leu Phe Tyr Thr Asp Ser Glu Thr Val Asn
1265   1270   1275   1280

Leu Ile Lys Leu His Ser Leu Glu Asn Val Lys His Gly Val Thr Tyr
        1285   1290   1295

Ser Ile Tyr Gly Ala Phe Pro Ile Glu Glu Ser Ser Pro Glu Ser Ser
            1300   1305   1310

<210> 121
<211> 309
<212> PRT
<213> Babesia microti

<400> 121
Gln Leu Trp Ile Arg Met Lys Ser Val Arg Pro Ile Leu Ile His Phe
                    5   10   15

Ile Thr Phe Phe Leu Thr Ser Gly Asn Val Phe Ala Gly Asn Gly Asp
            20   25   30

Val Asn Gln Tyr Ser Ser Asp Phe Gly Arg Ala Leu Asn Asp Leu Met
            35   40   45

Ile Ala Phe Asn Glu Ala Lys Lys Met Tyr Ala Lys Phe Ser Glu Gln
        50   55   60

Ile Thr Asp Thr Met Ile His Thr Cys Lys Asn Ser Ile Asp Ile Leu
    65   70   75   80

Glu Ala Asp Glu Lys Asn Gly Gly His Lys Asn Tyr Leu Glu Lys Lys
                85   90   95

Glu Ile Glu Leu Lys Ser Lys Ile Val Glu Phe Asn Ala Ile Phe Ser
            100   105   110

Asn Ile Asp Leu Asn Asn Ser Thr Val Lys Asn Glu Ile Ile Lys Leu
            115   120   125

Leu Asn Asp Ile Ser Thr Ile Ser Thr Asp Ile Lys Ser Ile Val Asp
        130   135   140

Glu Ile Tyr Tyr Lys Ala Leu Gly Thr Ile Glu Gly Glu Asn Ala Glu
145   150   155   160

Asn Phe Glu Tyr Glu Ile Lys Lys Lys Lys Ala Glu Leu Leu Arg Asn
                165   170   175

Leu Leu Asn Asp Asn Ile Lys Pro Ile Met Gly Tyr Leu Thr Glu Ile
            180   185   190

Tyr Asn Met His Ile Pro Ile Ile Ser Asn Lys Ser Glu Phe Asn Asp
            195   200   205

Ile Lys Lys Ala Phe Glu Lys His Glu Leu Glu Ala Asn Val Leu Ile
        210   215   220

Ser Lys Ile Leu Glu Asn Asn Gln Asn Phe Gly Thr Asn Phe Asn Asp
225   230   235   240

Ile Leu Asn Glu Val Asn Gly Ala Ile Glu Glu Phe Asn Lys Thr Ile
                245   250   255

Asp Val Met Asn Asn Thr Ile Gly Asp Leu Gly Ile Val Ile Asp Ser
                260   265   270

Gly Ile Ile Ser Ser Ile Lys Ser Tyr Ile Ser Thr Ile Ala Lys Ile
            275   280   285

Ser Asn Ser Ile Ile Pro Gly Gln Met Ala Leu Val Phe Thr Ala Leu
        290   295   300

Ile Leu Ile Leu Asn
305

<210> 122
<211> 222
<212> PRT
<213> Babesia microti

<400> 122
Arg Leu Thr Leu Thr Leu Ala Thr Asn Thr Arg Gly Gly Ala Gly Thr
                5   10   15

Asp Ala Thr Ser Val Ser Ile Ala Asn Ser Ile Pro Thr Ser Ala Ala
                20   25   30

Thr Ala Ala Gln Ser Thr Thr Ala Ala Thr Ser Thr Thr Ala Ala Thr
            35   40   45

Ser Thr Thr Ser Ala Thr Ser Thr Thr Ser Ala Thr Ser Thr Thr Ala
        50   55   60

Thr Thr Ser Thr Thr Thr Ala Thr Ser Thr Thr Thr Ala Thr Ser Thr
65   70   75   80

Thr Ala Thr Thr Ser Thr Thr Ala Ala Thr Ser Thr Ile Ser Pro Ser
                85   90   95

Leu Glu Thr Thr Gln Asp Val Ala Val Thr Asn Ile Val Asn Leu Asn
            100   105   110

Ile Asn Glu Ile Gly Phe Val Asp Gln Val Pro Glu Gly Leu Ser Ser
            115   120   125

Ser Tyr Val Phe Ser Thr Asp Gly Ile Phe Thr Lys Val Thr Pro Ala
        130   135   140

Thr Gly Phe Ser Ile Gly Cys Val Ile Phe Gly Asn Gln Leu Ile Pro
145   150   155   160

Gln Ser Met Asp Val Ile Thr Arg Thr Val Ser Tyr Thr Thr Lys Tyr
                165   170   175

Pro Leu Ile Val Val Arg Ile Gln Asp Lys Thr Ser Ser Ser Thr Ser
                180   185   190

Thr Val Tyr Tyr Glu Gln Ser Gly Leu Gln Ser Ser Lys Phe Val Leu
                195   200   205

Arg Asp Asp Pro Glu Phe Thr Ser Gln Leu Thr Ser Ser Phe
     210   215   220

<210> 123
<211> 452
<212> PRT
<213> Babesia microti

<400> 123
Ile Ile Met Lys Ile Asn Ile Asp Asn Ile Ile Leu Ile Asn Leu Ile
                  5   10   15

Ile Leu Leu Asn Arg Asn Val Val Tyr Cys Val Asp Lys Asn Asp Val
                20   25   30

Ser Leu Trp Lys Ser Lys Pro Ile Thr Thr Val Ser Thr Thr Asn Asp
           35   40   45

Thr Ile Thr Asn Lys Tyr Thr Ser Thr Val Ile Asn Ala Asn Phe Ala
     50   55   60

Ser Tyr Arg Glu Phe Glu Asp Arg Glu Pro Leu Thr Ile Gly Phe Glu
65   70   75   80

Tyr Met Ile Asp Lys Ser Gln Gln Asp Lys Leu Ser His Pro Asn Lys
                85   90   95

Ile Asp Lys Ile Lys Ile Ser Asp Tyr Ile Ile Glu Phe Asp Asp Asn
           100   105   110

Ala Lys Leu Pro Thr Gly Ser Val Asn Asp Ile Ser Ile Ile Thr Cys
           115   120   125

Lys His Asn Asn Pro Val Leu Ile Arg Phe Ser Cys Leu Ile Glu Gly
     130   135   140

Ser Ile Cys Tyr Tyr Phe Tyr Leu Leu Asn Asn Asp Thr Asn Lys Trp
145   150   155   160

Asn Asn His Lys Leu Lys Tyr Asp Lys Thr Tyr Asn Glu His Thr Asp
                165   170   175

Asn Asn Gly Ile Asn Tyr Tyr Lys Ile Asp Tyr Ser Glu Ser Thr Glu

```
          180                    185                      190
Pro Thr Thr Glu Ser Thr Thr Cys Phe Cys Phe Arg Lys Lys Asn His
     195                200             205

Lys Ser Glu Arg Lys Glu Leu Glu Asn Tyr Lys Tyr Glu Gly Thr Glu
     210             215             220

Leu Ala Arg Ile His Cys Asn Lys Gly Lys Cys Val Lys Leu Gly Asp
225             230             235                 240

Ile Lys Ile Lys Asp Lys Asn Leu Glu Ile Tyr Val Lys Gln Leu Met
             245             250                 255

Ser Val Asn Thr Pro Val Asn Phe Asp Asn Pro Thr Ser Ile Asn Leu
             260             265             270

Pro Thr Val Ser Thr Thr Asn Asp Thr Ile Thr Asn Lys Tyr Thr Gly
         275             280             285

Thr Ile Ile Asn Ala Asn Ile Val Glu Tyr Cys Glu Phe Glu Asp Glu
     290             295             300

Pro Leu Thr Ile Gly Phe Arg Tyr Thr Ile Asp Lys Ser Gln Gln Asn
305             310             315                 320

Lys Leu Ser His Pro Asn Lys Ile Asp Lys Ile Lys Phe Phe Asp Tyr
             325             330                 335

Ile Ile Glu Phe Asp Asp Asp Val Lys Leu Pro Thr Ile Gly Thr Val
             340             345             350

Asn Ile Ile Tyr Ile Tyr Thr Cys Glu His Asn Asn Pro Val Leu Val
             355             360             365

Glu Phe Ile Val Ser Ile Glu Glu Ser Tyr Tyr Phe Tyr Phe Tyr Ser
     370             375             380

Met Asn Asn Asp Thr Asn Lys Trp Asn Asn His Lys Ile Lys Tyr Asp
385             390             395                 400

Lys Arg Phe Asn Lys His Thr Asp Met Asn Gly Ile Asn Cys Tyr Glu
             405             410                 415

Tyr Val Leu Arg Lys Cys Ser Ser Tyr Thr Arg Lys Asn Glu Tyr Glu
             420             425             430

His Lys Glu Leu Ala Arg Ile His Cys Asn Glu Glu Lys Cys Val Asn
         435             440             445

Val Lys Val Arg
     450
```

```
<210> 124
<211> 732
<212> PRT
<213> Babesia microti

<400> 124
Val Pro Thr Leu Ser Ser Leu Val Lys Leu Phe Ser Glu Val Met Leu
                  5                  10                  15

Arg Val Lys Asp Ala Ser Ser Thr Glu Ala Thr Ile Arg Met Phe Leu
             20                  25                  30

Arg Phe Asn Ala Phe Ile Lys Phe Leu Asn Glu Glu Lys Ser Arg Gly
         35                  40                  45

Asp Lys Ser Ala Leu Asn Asp Glu Gly Leu Met Arg Phe Ile Ser Met
     50                  55                  60

Thr Ser Gly Phe Ile Asp Asp Leu Glu Leu Val Leu Asp Glu Leu Ser
 65                  70                  75                  80

Lys His Ser Leu Leu Ile Asn Asn Glu Gly Ala Lys Ser Met Leu Ser
                 85                  90                  95

Ser Leu Ile Leu Ser Phe Arg Tyr Ile Asn His Ile Arg Asn Leu Ile
            100                 105                 110

Asn Gly Ile Tyr Leu Gly Leu Asn Asn Pro Ser Ser Ser Ile Gly Glu
        115                 120                 125

Thr Ala Gln Glu Thr Thr Glu Pro Ser Thr Pro Thr Pro Thr Pro Ser
    130                 135                 140

Thr Gln Thr Ile Leu Lys Pro Lys Gly Ser Glu Ile Arg Gly Tyr Ile
145                 150                 155                 160

Ile Lys Val Asp Gln Thr Ala Asn Leu Ile Thr Phe Ile Asp Ala Leu
                165                 170                 175

Ile Lys Glu Leu Asn Val His Ile Lys Gln Thr Thr Thr Ser Ser Val
            180                 185                 190

Val Gly Thr Lys Glu Thr Asn Gly Thr Thr Ser Gly Ser Pro Glu Ser
        195                 200                 205

Asn Pro Gly Ser Thr Asp Ser Gly Ser Ile Gln Ala Glu Val Ala Glu
    210                 215                 220

Leu Leu Lys Lys Phe Ala Thr Ile Ala Ser Phe Asp Glu Lys Phe Thr
225                 230                 235                 240

Asn Leu His Ile Asn Lys Pro Phe Ala Asp Ala Leu Ile Lys Arg Leu
                245                 250                 255
```

Asn Glu Ile Lys Ala Glu Leu Ser Ser Asn Ser Gly Thr Pro Pro Lys
            260   265   270

Leu Pro Asp Ile Ser Cys Leu Arg Leu Ser Glu Ile Val Gln Lys Leu
            275   280   285

Asn Arg Leu Ile Lys Phe Asn Thr Ser Arg Leu Ile Asn Lys Ser Phe
    290   295   300

Pro Glu Leu Cys Lys Leu Phe Ile Lys Met Pro Asp Val Asp Ser Asn
305   310   315   320

Lys Phe Met Ala Leu Asp Val Asp Ile Ser Asn Thr Leu Val Asn Arg
                325   330   335

Arg Val Arg Tyr Ser Asp Gly Arg Phe Thr Ile Val Ser Thr Gly Ser
            340   345   350

Asn Phe Arg Tyr Thr Leu Ala Pro Thr Ala Ala Gly His Asp Leu Ser
        355   360   365

Leu Phe Ser Gln Leu Pro Ile Ser Met Ile Thr Val Thr Ser Pro Gln
    370   375   380

Glu Gln Ala Leu Thr Ser Cys Val Ser His Gly Asn Glu Phe Ser Ile
385   390   395   400

Val Ser Thr Ala Gly Lys Thr Thr Tyr Thr Thr Gln Ser Lys Leu Leu
                405   410   415

Ser Leu Phe Lys Leu Ser Ala Glu Thr Leu Arg Asp Phe Asn Glu Ala
            420   425   430

Arg Phe Ala Leu Gly Asn Met Thr Asp Ser Ala Asn Lys Ser Lys Ala
        435   440   445

Leu Glu Val Tyr Lys Ser Thr Leu Thr Thr Met Lys Ser Ile Ser Val
    450   455   460

Glu Leu Glu Lys Ile Phe Gly Ile Leu Lys Ser Thr Pro Asn Ile Thr
465   470   475   480

Phe Glu Ser Val Val Ser Lys Tyr Lys Leu Thr Gly Val Asn Thr Val
                485   490   495

Asp Thr Ala Asn Ala Asp Val Ile Asn Glu Thr Met Phe Asp Asp Leu
        500   505   510

Ser Lys Ala Ile Ser Ser Tyr Leu Tyr Ser Leu Ile Ser Ile Ile Phe
        515   520   525

Pro Glu Asp Ile Lys Gly Gln Gly Thr Ser Glu Gly Gln Gln Thr Ser
    530   535   540

Glu Gly Gln Gln Thr Ser Glu Gly Gln Gln Thr Ser Gly Asp Gln Asp
545   550   555   560

Thr Ser Gly Gly Gln Asp Thr Asn Glu Thr Ile Phe Ser Tyr Leu Tyr
                565   570   575

Ser Leu Ile Ser Ile Ile Phe Pro Glu Asp Ile Lys Gly Gln Gly Thr
                580   585   590

Ser Ala Gln Leu Leu Glu Tyr Arg Thr Gln Leu Ala Ser Leu Ser Lys
            595   600   605

Ile Lys Ser Leu Arg Lys Lys Ile Lys Arg Arg Leu His Ser Tyr
        610   615   620

Pro Thr Phe Cys Ser Leu Ser Tyr Val Pro Ser Thr Ser Val Ser
        625   630   635

Phe Cys Arg Asn Glu Phe Leu Leu Asn Met Val Ser Phe Ser Gln Ser
        640   645   650

Leu Phe Ile Leu Phe Pro Leu Leu Phe Ser Cys Trp Thr Glu Val
655   660   665

Leu Met Gly Asn Tyr Ile Tyr Pro His Tyr Phe Ser Pro Ser Ile Leu
670   675   680   685

Met Leu Tyr Thr Leu Phe Ile Thr Pro Arg Val Ser Pro Pro Cys Leu
            690   695   700

Ser Pro Phe Leu Pro Thr Ser Pro Gln Pro Thr Thr His Gly Val
            705   710   715

Asn Thr Pro Gln Lys Cys Cys Leu Pro Gly Thr Leu Ser Gly
            720   725   730

Lys Ala

<210> 125
<211> 334
<212> PRT
<213> Babesia microti

<400> 125
Leu Ser Asn Ser Ser Ile Arg Gly Arg Val Trp Leu Ile Phe Pro Arg
                5   10   15

Tyr Leu Leu Lys Asp Tyr Lys Met Ile Leu Val Cys Ile Cys Phe Val
                20   25   30

Asn Ile Glu Asp Leu Gly Thr Gln Lys Asn Lys Ser Ser Pro Leu Gly
            35   40   45

Lys Ile Gly Thr Ser Met Asp Asp Ile Ile Ala Met Phe Ser Asn Pro
    50   55   60

Asn Met Tyr Leu Val Lys Val Ala Tyr Leu Gln Ala Ile Glu His Ile
65   70   75   80

Phe Leu Ile Ser Thr Lys Tyr Asn Asp Ile Phe Asp Tyr Thr Ile Asp
            85   90   95

Phe Ser Lys Arg Glu Ala Thr Asp Ser Gly Ser Phe Thr Asp Ile Leu
        100   105   110

Leu Gly Asn Lys Val Lys Glu Ser Leu Ser Phe Ile Glu Gly Leu Ile
        115   120   125

Ser Asp Ile Lys Ser His Ser Leu Lys Ala Gly Val Thr Gly Gly Ile
    130   135   140

Ser Ser Ser Ser Leu Phe Asp Glu Ile Phe Asp Glu Leu Asn Leu Asp
145   150   155   160

Gln Ala Thr Ile Arg Thr Leu Val Ala Pro Leu Glu Glu Ile Lys Asn
            165   170   175

Glu Leu Lys Thr Ile Ser Ser Gln Lys Ile Ala Asp Ala Thr Val Thr
        180   185   190

Pro Ser Thr Pro Asn Thr Asn Val Asn Ile Lys Thr Ile Ile Ser Lys
        195   200   205

Ile Lys Lys Ile Leu Met Ile Ser Glu Thr Ile Ser Ser Thr Ala Leu
    210   215   220

Ala Arg Leu Ser Ala Val Leu Ser Ile Leu Gly Arg Gly Thr Ser Thr
225   230   235   240

Asn Val Ile Pro Glu Arg Leu Thr Ser Ile Val Val Asp Leu Lys Ser
            245   250   255

Ala Thr Val Pro Gln Glu Val Ala Leu Lys Asn Gly Val Tyr Lys Leu
            260   265   270

Lys Asp Gln Phe Lys Leu Thr His Lys Met Ile Pro Val Phe Gly Ser
        275   280   285

Val Gln Leu Gln Ile Pro Glu Lys Ser Thr Val Val Gln Ile Ser Val
    290   295   300

Val Glu His Glu Asn Asp Thr Lys Met Ala Ile Ile Thr Leu Asp Asp
305   310   315   320

His Ser Lys Leu Thr Leu Glu Arg Val Ile Leu Ser Glu Thr
            325   330

<210> 126
<211> 268
<212> PRT
<213> Babesia microti

<400> 126
Lys Tyr Lys Tyr Ala Leu Glu Ser Gly Glu Pro Arg Arg Val Glu Met
                5   10   15

Gly Ser Arg Phe Ser Glu Met Gly Ser Arg Phe Ser Val Ser Pro Trp
            20   25   30

Ala Trp Leu Glu Cys Pro Ser Cys Leu Pro Ser Pro Leu Phe Gln Val
        35   40   45

Thr Met Ser Pro Ser Gln Ser Pro Arg Trp Ser Ser Cys Pro Pro Leu
    50   55   60

Ser Ser Trp Leu Leu Pro His Pro Arg His Ile Pro Ile Lys Asp Cys
65   70   75   80

Arg Leu Ser Tyr Cys Tyr Pro Cys Arg Val Leu Met Pro Leu Arg Pro
                85   90   95

Gly Thr Ser Ser Ala Ser Val Pro Ser Arg Pro His Ser Ala Pro Pro
            100   105   110

His Val Ala Gly Pro Pro Ser Ala Pro Arg Asp Leu Gln Tyr Ser Leu
        115   120   125

Ser Arg Ser Pro Leu Ala Leu Arg Leu Arg Trp Leu Pro Pro Ala Asp
    130   135   140

Ser Gly Gly Arg Ser Asp Val Thr Tyr Ser Leu Leu Cys Leu Leu Cys
145   150   155   160

Gly Arg Asp Gly Pro Ala Gly Ala Cys Gln Pro Cys Gly Pro Arg Val
                165   170   175

Ala Phe Val Pro Arg Gln Ala Gly Leu Arg Glu Arg Ala Ala Thr Leu
            180   185   190

Leu His Leu Arg Pro Gly Ala Arg Tyr Thr Val Arg Val Ala Ala Leu
        195   200   205

Asn Gly Val Ser Gly Pro Ala Ala Ala Glu Ala Thr Tyr Ala Gln
    210   215   220

Val Thr Val Ser Thr Gly Pro Gly Gly Glu Ala Thr Arg Pro Ser Gly
225   230   235   240

Val Arg Pro Pro Pro Gln Pro Gln Phe Pro Leu Cys Ile Pro Ser His

```
                    245                  250                      255

Ser Gly Thr His Val Thr Thr Pro His Ala Pro Gly
            260                  265


<210> 127
<211> 386
<212> PRT
<213> Babesia microti

<400> 127
Val Asn Ala Leu Ile Lys Glu Leu Asn Ala His Ile Lys Gln Arg Ala
                 5                  10                  15


Thr Ser Thr Thr Thr Ile Ile Ile Glu Thr Asn Ala Lys Asp Val Asp
            20                  25                  30


Glu Leu Val Lys Lys Phe Ala Thr Ile Ala Ser Phe Asp Asp Lys Phe
            35                  40                  45


Lys Asn Val Phe Phe Asp Asn Ser Val Ile Asp Glu Ile Val Lys Thr
       50                  55                  60


Leu Glu Lys Met Lys Val Glu Ser Asp Thr Val Leu Pro Ser Cys Asn
65                  70                  75                  80


Gly Ile Gln Thr Thr Glu Asn Ser Ser Thr Asp Pro Tyr Thr Val Leu
                85                  90                  95


Ser Lys Leu Ile Lys Lys Ile Asn Asp Ser Ile Ile Arg Pro Met Thr
            100                 105                 110


Ser Arg Leu Ile Asn Lys Ser Phe Pro Glu Leu Cys Lys Leu Phe Ile
            115                 120                 125


Lys Met Pro Asp Val Asp Ser Asn Lys Phe Met Ala Leu Asp Val Asp
            130                 135                 140


Ile Ser Asn Thr Leu Val Asn Arg Arg Val Arg Tyr Ser Asp Gly Arg
145                 150                 155                 160


Phe Thr Ile Val Ser Thr Gly Ser Asn Phe Arg Tyr Thr Leu Ala Pro
                165                 170                 175


Thr Ala Ala Gly His Asp Leu Ser Leu Phe Ser Gln Leu Pro Ile Ser
            180                 185                 190


Met Ile Thr Val Thr Ser Pro Gln Glu Gln Ala Leu Thr Ser Cys Val
            195                 200                 205


Ser His Gly Asn Glu Phe Ser Ile Val Ser Thr Ala Gly Lys Thr Thr
            210                 215                 220
```

Tyr Thr Thr Gln Ser Lys Leu Leu Ser Leu Phe Lys Leu Ser Ala Glu
225   230   235   240

Thr Leu Arg Asp Phe Asn Glu Ala Arg Phe Ala Leu Gly Asn Met Thr
            245   250   255

Asp Ser Ala Asn Lys Ser Lys Ala Leu Glu Val Tyr Lys Ser Thr Leu
            260   265   270

Thr Thr Met Lys Ser Ile Ser Val Glu Leu Glu Lys Ile Phe Gly Ile
        275   280   285

Leu Lys Ser Thr Pro Asn Ile Thr Phe Glu Ser Val Val Ser Lys Tyr
    290   295   300

Lys Leu Thr Gly Val Asn Thr Val Asp Thr Ala Asn Ala Asp Val Ile
305   310   315   320

Asn Glu Thr Met Phe Asp Asp Leu Ser Lys Ala Ile Ser Ser Tyr Leu
            325   330   335

Tyr Ser Leu Ile Ser Ile Ile Phe Pro Glu Asp Ile Lys Gly Gln Gly
        340   345   350

Thr Ser Glu Gly Gln Gln Thr Ser Gly Gly Gln Asp Thr Asn Glu Thr
        355   360   365

Ile Phe Ser Tyr Leu Tyr Ser Leu Ile Ser Ile Ile Phe Pro Glu Asp
    370   375   380

Ile Lys
385

<210> 128
<211> 1371
<212> DNA
<213> Babesia microti

<400> 128
acataacact agggacttgg cattgcatat ctgtaaatat aattgaaacc aaaataaaat 60
attggtgagt tccataggtt gggttgttca cagtgacatt taaaagtgaa attcttgaga 120
gctggtttgg aggttctatt aggggagtgc ggtacttgta taccttggac tgaagaccag 180
tcctcctcta ttccgggaag gtcgtcctct tcgaccaagc atgcagcttc aggatggaca 240
cacatggagt gttgagggag gaaagagatc cccctaagcc agatagatca actaaatgaa 300
ccttggaaat aaatggggtg acagatgtag cagcgagatt gccctcacat actgaaaatg 360
aaataattaa ccaccattag ttttccatct gatacctagg cactctctaa tttaattcaa 420
cattctgaaa agtgtctttg aaagattggt ggcaaccacc tattatccct ccaatgggta 480
ggcaaagaca ggtgaatcga agtatgttgt agggaggcta gtcttaatat agggttcaac 540
tacagggaag acttcatgct aagatgctat ttcagataaa aaagaaatgt gtgttttta 600
tctgacttct tattgtggca ccatagagca ttgaaaagca ccgtatgctg ttttgtggta 660
tcagatcaca ttattttcac agttgaaagg cattataaaa caggttttgt tgacactaga 720
ctttaatccc agcatttggg aaacagaggc aggtggatct ggagattcg tgctagcctg 780
gtctacagtg ggagtttaag gatagctggg atttcaatga gaaaccatgt ccctgggggtg 840

```
aggggaagga agaaaaaaag ataatgtagt atgatacagg ataaaattta atagcatctt 900
tttaagaatt atgagaacac tctctgtcac tgggttctat ggattcagtt tattgtttaa 960
ctgtgggtgt ttagctctgc ttctatcagt cactggatga aggtactaga atggcatata 1020
acactggaac acttaacagc ttacttgagg ctagtaagtg aagcacatga tgacaggtat 1080
ggaggggttg tgcagaatgg aactaagttc tagagaattt gcagaaatgg tcattatagg 1140
acactgggtg aaaggtgcct ctctgtacac ttcctaaagc tctgtccgtt gcttggataa 1200
tatgtgatct cttggacagt gatgtacctg accttccctc tgtctctgtt ctctttctcc 1260
ttcctttccc ctcccctctg cttcccctcc tctgccctcc cctctcttct attcccttct 1320
ctcctctctc attcattccc cttgctcttc tctcccttct tctctttctt t           1371
```

<210> 129
<211> 2417
<212> DNA
<213> Babesia microti

<400> 129

```
attttgtact gttcaaatgt gtaatatatt tgtgaaagaa gaaaataatt taagtcaaga 60
ggatgatgaa agggcagaag taatacttga dataagcact tcacatctta caattaaaac 120
tcttctgtgt ctacctgcaa attcatgaca gatgaaatta acttgttttc tattcgtttt 180
ctcctcttat ttctgccagt attataattt caggaaggaa catgcatcat aaattacatg 240
taactttcat gttgcagtga tgctgttttc tatttttgat ctcatttgac agcagtaaag 300
tcatacaaaa aataataaat acctctcatg gagcttgcca tttcctctgc atcttttttg 360
gggaagaagt ggcctgaaga gtagagcgtt aagactcaca aagtcaagaa ctttcagata 420
gaacccagcc atcaattgca gccacaatgg gtgctgaatc caacttcttg atttgttttt 480
aaaggtatta ggaataatat tgattagcac ttgtcaggtt cacaatccag gacctaatac 540
aagacacacc tcaggtgaat ttctgagaga ttatccatat tagttaattg aggagggaaa 600
ctctacctta attgtccatg ggaccagttc aacagctaga gtactgaact gcataaaaag 660
gagaaagtga cctgggcagg aacatgacca ttctcttgcg cctcgctgca gaagaaatgt 720
gatcagcctc tttaaagtcc tgtagcagtg actcccatgc cacaatgaac tgtagccaat 780
ttcatcatac tgtcctagct tcctttctct ctttataata ctttgtactg atgtgaccaa 840
attctgaacc ctcaagtcac caagaaaccc attccaaggc aaaagcaaac agacttgtat 900
tatttaacaa gttaatgcca tctactccgg tccttcatac gttcatcatg gtgggtggaa 960
tgagaaggac cccaatgggc catgaggcag ggaatttatt gggcacagca aggggagtgt 1020
ctagggtcat tgttagctga ctcagagtgc agtgctttgc ctcgaatcct gagcgcattt 1080
attcggctct taaggtagcc aaccatgcct ggggggactg tcctgcttca atagcagtaa 1140
aggccgaaca atcatggctg cattgtgact ttgtgtgact ctaatcttac atagaagagt 1200
aattcagagc cccgtgttgc tcttctggcc cctgcgtgtg ggagggtgcc gacgtgatcc 1260
agagccatga gacacccgtg ccatcatccg tcccctcccg cgccacgcct tcttcatgcc 1320
tcgcttatgg ttctcctgtg tggtcgcaaa cgtttgaaaa cacgagcaac aagcaacacc 1380
ttctgaaaat taacagcaag gtttttcttaa gaattcacca agtgcaggct ggagagaggg 1440
cccagaggtt aagagtactg gctgctcttc cagaggtcct gagttcaatt cccagcaccc 1500
acaggtggc tcacaaccat ctgtaatgag atcgtctgcc ctcttctggc ccgcaggcag 1560
aacactgtat atataataag taaataaatc tcttttttaaa aaagagtgag gtactgaagc 1620
aaccccatac caccgtgtgt caatatgtga tttaaaaaaa aagaattaac taagtgcagg 1680
atactgtggc cattgtctgc ccctggaagg tcctgtgccc caggaaaagt ctgcgtgctc 1740
ctgtctccag gccatgcaga gggctgaatc ccccgtccgc cccccacacg cacaacatat 1800
actcgttttg tctcctctgc agaatctaga tttcacatac atattacacg caagcagaaa 1860
gttgaccgtt agagaaattg ctttctatta atttttaatt taagggagat tgactacatc 1920
aatgaattaa gaactgatac atcaatattg aattctggaa gatgaactgg ggagaatgct 1980
ccatgtggaa attgttcacc atataaccat ggggatatgg gctcagcctc agtactcttg 2040
tagcaaactg gacacagcag cacaccttga gcccttgcac aggacatgca aagacagaat 2100
gatgatacca gtggctttgg ggccagccaa gtctacccca ttaagggaag actaacagtc 2160
ggtaaccagg aactcaggtt cagtacctgc ctgtggcttt ataaaactta cttctagttt 2220
agatttccat tttatgtttc attattccag atattctgtt tttgatctat ctgcttatga 2280
```

```
tttatatttc ctaaattctc aacttgtaaa tggcattaga aggatggaat tgtacagttt 2340
cactttgtaa ttgttaagtc ctatgctgtg tttttgcatg tttttgaagt gttttcagta 2400
agtatttact tatttat                                                2417
```

<210> 130
<211> 1333
<212> DNA
<213> Babesia microti

<400> 130
```
aggtcacaca tagaggagtg tggtcaatta aacactcaag caccctatgt cttggtttgc 60
tctctattgc tgtgataaac accagagcta agcccaactt gaagttgtca catggtctcc 120
acacaaatac acacacacac acacacacac acacacctat gtatgcacat gcaaccccac 180
acacatacaa aaaaaaaaga acctctactc tttaacagca ataaaaaatg aactaggtga 240
aaagaaaacc aaccttgctt catcatttag tcatagaaaa tgatactgtg gttgtcattt 300
actatcatta acctaaaata aatgtgtccc tacctaaggg tataaactgt tatctggcct 360
tgtacagatt ttggatcttg aattctttta gtgggttgcc caatagcatt ttaaggtccc 420
agaataaata gacaggatga aatgggatgg gctagagtag aatggaggct aatatcagaa 480
caaatcagac agtgaggata tacttggctt tacaagaatc ctatttacac acacatgcac 540
atgtactgtc agtatgtact gctacatcaa caacatctgc tacatcaaca acagctacca 600
catcaacaac aactgccaca tcaacaacaa ctgccacatc aacaacagct accacatcaa 660
caacagctgc cacatcaaca atttctccgt ctctggagac cacacaagat gttgctgtca 720
caaatattgt gaatcttaac ataaacgaaa taggatttgt tgatcaagtt ccagagggtc 780
tttcttctag ttacgttttt tctactgatg gaatctttac caaagttacc ccagctacag 840
ggttttcaat tggttgtgta atatttggca atcaattaat tccacagtcc atggatgtta 900
tcactaggac cgtttcatac accactaaat atcctttgat tgttgttagg attcaagata 960
agacttcgag ttctacttca accgtttact atgagcaatc tggtttacaa tctagcaaat 1020
ttgttttgag ggatgaccca gaattattta ttcctcaaaa tcgaagtagt acttatacag 1080
tcaatgacat aacatataaa tcatttgata tttctagtgc cgatgataac gaattttttaa 1140
aaatatcatt aagtgatggg agcatgttgt acaccaataa tccagattcc aaaatttaca 1200
tcagcgaagt taaggttggt gagataacaa taccaataaa tataacatca caatatacac 1260
tgatcaaatt atcatttaat ggtgaattgg ttgagttgta tactacagga tgtttcggtg 1320
aacataatat taa                                                   1333
```

<210> 131
<211> 537
<212> DNA
<213> Babesia microti

<400> 131
```
ttatggaggg ctatttagat ctcgatttga attccaagat tggtaacttt atttcagcca 60
tcgaactcac taacctgacc aacacggtaa aatcagcgag cgtccaccct ccccaactaa 120
aagtgttggc tctgaagttt ggcaacaaga tcgttgatgt cgaggagaca ggcaggacat 180
ttgttacatt tgatgagaag ttgaattcaa tagaaataat taccttcgaa aatgatggca 240
ctatgacatc aaaattttat tccagggagt ccctagactc aacaacctac attggacatg 300
cctctacgta cacacttccc gaagtgctta ccaggtcatt atgtggtaaa gaggacttat 360
gtacgcttga cattacggat ctattgttga aagagattag tgctaagaaa ttggaggagt 420
gtaggaagaa gaatgcatct agtggtactc catctggtgg tacaccttct aatgttccag 480
aggagtgtgt aattagaacc aacttacaga tggttatgaa gaagaatgct cgtgccg 537
```

<210> 132
<211> 178
<212> PRT
<213> Babesia microti

<400> 132

```
Met Glu Gly Tyr Leu Asp Leu Asp Leu Asn Ser Lys Ile Gly Asn Phe
                 5                   10                  15

Ile Ser Ala Ile Glu Leu Thr Asn Leu Thr Asn Thr Val Lys Ser Ala
             20                  25                  30

Ser Val His Pro Pro Gln Leu Lys Val Leu Ala Leu Lys Phe Gly Asn
             35                  40                  45

Lys Ile Val Asp Val Glu Glu Thr Gly Arg Thr Phe Val Thr Phe Asp
         50                  55                  60

Glu Lys Leu Asn Ser Ile Glu Ile Ile Thr Phe Glu Asn Asp Gly Thr
 65                      70                  75                  80

Met Thr Ser Lys Phe Tyr Ser Arg Glu Ser Leu Asp Ser Thr Thr Tyr
                 85                  90                  95

Ile Gly His Ala Ser Thr Tyr Thr Leu Pro Glu Val Leu Thr Arg Ser
             100                 105                 110

Leu Cys Gly Lys Glu Asp Leu Cys Thr Leu Asp Ile Thr Asp Leu Leu
         115                 120                 125

Leu Lys Glu Ile Ser Ala Lys Lys Leu Glu Glu Cys Arg Lys Lys Asn
     130                 135                 140

Ala Ser Ser Gly Thr Pro Ser Gly Gly Thr Pro Ser Asn Val Pro Glu
145                 150                 155                 160

Glu Cys Val Ile Arg Thr Asn Leu Gln Met Val Met Lys Lys Asn Ala
                 165                 170                 175

Arg Ala
```

<210> 133
<211> 292
<212> PRT
<213> Babesia microti

<400> 133

```
Ser Arg Met Glu Ala Asn Ile Arg Thr Asn Gln Thr Val Arg Ile Tyr
                 5                   10                  15

Leu Ala Leu Gln Glu Ser Tyr Leu His Thr His Ala His Val Leu Ser
             20                  25                  30

Val Cys Thr Ala Thr Ser Thr Thr Ser Ala Thr Ser Thr Thr Ala Thr
             35                  40                  45
```

Thr Ser Thr Thr Thr Ala Thr Ser Thr Thr Thr Ala Thr Ser Thr Thr
    50   55   60

Ala Thr Thr Ser Thr Thr Ala Ala Thr Ser Thr Ile Ser Pro Ser Leu
65   70   75   80

Glu Thr Thr Gln Asp Val Ala Val Thr Asn Ile Val Asn Leu Asn Ile
                85   90   95

Asn Glu Ile Gly Phe Val Asp Gln Val Pro Glu Gly Leu Ser Ser Ser
            100   105   110

Tyr Val Phe Ser Thr Asp Gly Ile Phe Thr Lys Val Thr Pro Ala Thr
        115   120   125

Gly Phe Ser Ile Gly Cys Val Ile Phe Gly Asn Gln Leu Ile Pro Gln
    130   135   140

Ser Met Asp Val Ile Thr Arg Thr Val Ser Tyr Thr Thr Lys Tyr Pro
145   150   155   160

Leu Ile Val Val Arg Ile Gln Asp Lys Thr Ser Ser Ser Thr Ser Thr
                165   170   175

Val Tyr Tyr Glu Gln Ser Gly Leu Gln Ser Ser Lys Phe Val Leu Arg
            180   185   190

Asp Asp Pro Glu Phe Ile Ile Pro Gln Asn Arg Ser Ser Thr Tyr Thr
        195   200   205

Val Asn Asp Ile Thr Tyr Lys Ser Phe Asp Ile Ser Ser Ala Asp Asp
    210   215   220

Asn Glu Phe Leu Lys Ile Ser Leu Ser Asp Gly Ser Met Leu Tyr Thr
225   230   235   240

Asn Asn Pro Asp Ser Lys Ile Tyr Ile Ser Glu Val Lys Val Gly Glu
            245   250   255

Ile Thr Ile Pro Ile Asn Ile Thr Ser Gln Tyr Thr Leu Ile Lys Leu
        260   265   270

Ser Phe Asn Gly Glu Leu Val Glu Leu Tyr Thr Thr Gly Cys Phe Gly
    275   280   285

Glu His Asn Ile
    290

<210> 134
<211> 215
<212> PRT
<213> Babesia microti

<400> 134
Val Gln Thr Phe Glu Asn Asp Gly Thr Met Thr Ser Lys Phe Tyr Ser
                  5   10   15

Arg Glu Ser Leu Asp Pro Thr Thr Tyr Ile Gly His Ala Pro Thr Asp
              20   25   30

Ile Phe Thr Ser Pro Trp Ile Thr Thr His Met His Asn Lys Arg Leu
          35   40   45

Val Asp Phe Glu Val Pro Phe Glu Ala Ile Phe Asp Asp Lys Leu Ile
      50   55   60

Ser Tyr Tyr Thr Gly Thr Asp Val Asn Gly Lys Asn Lys Val Pro Ala
65   70   75   80

Glu Leu Thr Lys Ala Ile Cys Gly Lys Glu Asp Val Cys Glu Leu Asn
                  85   90   95

Ile Thr Gly Leu Leu Leu Lys Asp Ile Ser Ala Lys Lys Leu Glu Glu
              100   105   110

Cys Arg Lys Lys Asn Ala Ser Ser Gly Thr Pro Ser Gly Gly Thr Pro
          115   120   125

Ser Asn Val Pro Glu Glu Cys Val Ile Lys Ser Asn Leu Gln Thr Val
      130   135   140

Met Lys Lys Asp Val Thr Thr Thr Leu Lys Ser Asp Asp Val Ser Asn
145   150   155   160

Tyr Ser Val Val Ser Ile His Phe Tyr Ile Asp Asn Val Phe Arg His
                  165   170   175

Asn Thr Ala Phe Gly Arg Ile Lys Ile Gly Asn Leu Asp Leu Pro Ala
              180   185   190

Phe Ser Ile Gly Phe Ile His Ser Ile Phe Val Glu Arg Val Leu Met
          195   200   205

Gly Asp Lys Ser Leu Ala Ser
210   215

<210> 135
<211> 2560
<212> DNA
<213> Babesia microti

<400> 135
agtgattctc ataaaaaacc aatattaata caattttctg ctactatagg aaaatcaacc 60
cgctattatt tctacaaatt gaaggataat aatgaatgga aaaatgaaaa attagaatgt 120
accagtatta gtcatcaagt tgacgataat cgtattgaat attatgaaac cttttgtgat 180

```
ggtgcctttc cccccttataa tacagaatat ggtaaacaaa aatgtagtga gcaaaaatga 240
gtaaaagtgt atagtattaa ggataagaat ttggaaattt atgtaaaata atttaatgaa 300
gtataatatt atttaaaata attcgaaatt taagaaatta atataattaa ttattataaa 360
aataaagtta tttatatcta aatttataat aatcaaattg ttatttaaca tatggatcta 420
tattgtgtga tgaaacaatg gattattaag ggaatcatac cattgtcagt taaaagtgat 480
attggtaaca atattacaaa tatatccaat gatactttta tattaataag catctatact 540
tgcaatcatt ataaactgga gatacgttta tattaacatt gtattaggaa taggataaa 600
cacaaatgat atgccataat aaaagtaaag tcaaatgact agtatattat acaacgataa 660
agtaataata taaaatatac taatatatct atgttatata aaatatgtct atactatagt 720
atttatttat gtgatatagt catatatttg tagaaataat tagtattatt tatgttatca 780
tacaatattt atcattatca aatcttactg ttatattatt attattatag agcaattttt 840
atacaatata caataaaatt aagcgataaa ccataaacat cacgtatgca ggcaaataaa 900
gacaaaatta tttgaccccca tataataaat taactatgtt attacataat aatcaacaag 960
aatataacgt ctatcaattt ataacttgaa cttatattta ttatctgaag attaattcaa 1020
agtatttcat tattacaacg ttattataac tataataaac atatatatta atcaataaca 1080
attgtggata aggatgaagt cagttagacc aatactaatt cattttatta cattctttt 1140
aacaagtgga aatgtctttg caggaaatgg tgatgttaat caatattcaa gtgattttgg 1200
acgagcatta aacgatctta tgatcgcttt taacgaggct aaaaaaatgt atgcaaaatt 1260
ttctgaacag atcacggaca ctatgtttca tacctacaaa aatagtattg atatactaaa 1320
agcagatgag aagaatggtg gtcataaaaa ttaccttgaa aagaaagaaa ttgagctcaa 1380
aagtaaaact gtggaatttg acgtcatttt ttcaaacatt gatttaaata atagtacggt 1440
taaaaatgaa ataattaaac tgcttaatga tatatccact atctctaccg atattaagtc 1500
aattgttgat gaaatatact ataaggctct tggtacaatt gaaggtgaaa atgctgaaaa 1560
ttttgagtat gaaattaaga aaaagaaagc tgaactactt agaaacctgc tgaatgataa 1620
tattaaacca attatgggat atttaactga gatatacaat atgcacatac caattatatc 1680
aaataaaagc gaatttaatg atatcaagaa agcatttgaa aagcacgaat tagaagctaa 1740
tgttttgata tccaagatat tagaaaataa tcagaatttt ggcactaatt ttaatgacat 1800
tttaaatgaa gtgaatggtg caattgaaga atttaataaa actattgacg tcatgaataa 1860
caccattggg gaccttggta ttgttattga cagcggtatt atttcaagca taaaatcaca 1920
tatttccaca atcgccaaga tttctaaagc aataatccct ggacaaatgg cattagtttt 1980
tactgcatta atattaattc taaattaaat gaaattcaga tgtatatatt attatatagt 2040
acaaaattta cacatttatt atatacatga acgaacatct tgctcttaaa taaagaaatt 2100
gagatataaa tggaaataaa ttaaagtaac atgagaaaga tgaatataat attaaaaatat 2160
taaatttaac tgaaataaaa tgaaataaaa gagtgtattt tgtaataatt tataataaat 2220
tagtatacaa tgattctaca ttataacaag cgagaataaa taattattga ttagtcataa 2280
tattatgtat atgttaaggt tgattgttat gtgttgctaa tatgttatat aattgtatac 2340
catagtgatt gatataatgt agaggataac tttggatatt atttgatgac tgataattat 2400
agtatataat tataataatg tttataaaaa tgacattaat ttgaaagttt aaattaaaat 2460
atatgtaaaa atatgtattt aaatctgaaa tggctaataa tacgttattt tgtaattaat 2520
tattttgtat ttataataat taattatatt aatttctgaa                      2560
```

<210> 136
<211> 309
<212> PRT
<213> Babesia microti

<400> 136
Gln Leu Trp Ile Arg Met Lys Ser Val Arg Pro Ile Leu Ile His Phe
                5   10   15

Ile Thr Phe Phe Leu Thr Ser Gly Asn Val Phe Ala Gly Asn Gly Asp
            20   25   30

Val Asn Gln Tyr Ser Ser Asp Phe Gly Arg Ala Leu Asn Asp Leu Met

```
            35                      40                      45
Ile Ala Phe Asn Glu Ala Lys Lys Met Tyr Ala Lys Phe Ser Glu Gln
     50                  55                  60

Ile Thr Asp Thr Met Phe His Thr Tyr Lys Asn Ser Ile Asp Ile Leu
 65                  70                  75                  80

Lys Ala Asp Glu Lys Asn Gly Gly His Lys Asn Tyr Leu Glu Lys Lys
                 85                  90                  95

Glu Ile Glu Leu Lys Ser Lys Thr Val Glu Phe Asp Val Ile Phe Ser
            100                 105                 110

Asn Ile Asp Leu Asn Asn Ser Thr Val Lys Asn Glu Ile Ile Lys Leu
         115                 120                 125

Leu Asn Asp Ile Ser Thr Ile Ser Thr Asp Ile Lys Ser Ile Val Asp
     130                 135                 140

Glu Ile Tyr Tyr Lys Ala Leu Gly Thr Ile Glu Gly Glu Asn Ala Glu
145                 150                 155                 160

Asn Phe Glu Tyr Glu Ile Lys Lys Lys Lys Ala Glu Leu Leu Arg Asn
                165                 170                 175

Leu Leu Asn Asp Asn Ile Lys Pro Ile Met Gly Tyr Leu Thr Glu Ile
             180                 185                 190

Tyr Asn Met His Ile Pro Ile Ile Ser Asn Lys Ser Glu Phe Asn Asp
         195                 200                 205

Ile Lys Lys Ala Phe Glu Lys His Glu Leu Glu Ala Asn Val Leu Ile
     210                 215                 220

Ser Lys Ile Leu Glu Asn Asn Gln Asn Phe Gly Thr Asn Phe Asn Asp
225                 230                 235                 240

Ile Leu Asn Glu Val Asn Gly Ala Ile Glu Glu Phe Asn Lys Thr Ile
                245                 250                 255

Asp Val Met Asn Asn Thr Ile Gly Asp Leu Gly Ile Val Ile Asp Ser
         260                 265                 270

Gly Ile Ile Ser Ser Ile Lys Ser His Ile Ser Thr Ile Ala Lys Ile
     275                 280                 285

Ser Lys Ala Ile Ile Pro Gly Gln Met Ala Leu Val Phe Thr Ala Leu
     290                 295                 300

Ile Leu Ile Leu Asn
305
```

```
<210> 137
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 137
gatcctctgg tggctccggt tcta                                               24


<210> 138
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 138
agcttagaac cggagccacc agag                                               24


<210> 139
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 139
attccagaac ccaatgcgga ttcagaatc                                          29


<210> 140
<211> 37
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 140
cttgaattca tagaatccca ggaaagcctt aaacatg                                 37


<210> 141
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 141
ccgccgtaga attctcaatt tacaataaat g                                       31
```

<210> 142
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 142
ggttctaagc ttacagatga tattaagaag gc   32

<210> 143
<211> 2034
<212> DNA
<213> Babesia

<400> 143
atgcagcatc accaccatca ccacattcca gaacccaatg cggattcaga atctgtacat 60
gttgaaatcc aggaacatga taacatcaat ccacaagacg cttgcgatag tgagccgctc 120
gaacaaatgg attctgatac cagggtgttg cccgaaagtt tggatgaggg ggtaccacac 180
caattctcta gattagggca ccactcagac atggcatctg atataaatga tgaagaacca 240
tcatttaaaa tcggcgagaa tgacataatt caaccaccct gggaagatac agctccatac 300
cattcaatag atgatgaaga gcttgacaac ttaatgagac taacggcgca agaaacaagt 360
gacgatcatg aagaagggaa tggcaaactc aatacgaata aaagtgagaa gactgaaaga 420
aaatcgcatg atactcagac accgcaagaa atatatgaag agcttgacaa cttactgaga 480
ctaacggcac aagaaatata tgaagagcgt aaagaagggc atggcaaacc caatacgaat 540
aaaagtgaga aggctgaaag aaaatcgcat gatactcaga caacgcaaga aatatgtgaa 600
gagtgtgaag aagggcatga caaaatcaat aagaataaaa gtggaaatgc tggaataaaa 660
tcgtatgata ctcagacaac gcaagaaata tgtgaagagt gtgaagaagg gcatgacaaa 720
atcaataaga ataaaagtgg aaatgctgga ataaaatcgt atgatactca gacaccgcag 780
gaaacaagtg acgctcatga agaagggcat gacaaaatca atacgaataa aagtgagaag 840
gctgaaagaa aatcgcatga tactcagaca acgcaagaaa tatgtgaaga gtgtgaagaa 900
gggcatgaca aaatcaataa gaataaaagt ggaaatgctg gaataaaatc gtatgatact 960
cagacaccgc aggaaacaag tgacgctcat gaagaagagc atggcaatct caataagaat 1020
aaaagtggga aggctggaat aaaatcgcat aatactcaga caccgctgaa aaaaaaagac 1080
ttttgtaaag aagggtgtca tggttgcaat aataagcccg aggataatga aagagacccg 1140
tcgtcgcctg atgatgatgg tggctgcgaa tgcggcatga cgaatcactt tgtctttgac 1200
tacaagacaa cactcttgtt aaagagcctc aagactgaaa catccactca ttattacatt 1260
gccatggctg caattttac tatttcatta ttcccatgca tgtttaaggc tttcctggga 1320
tcctctggtg gctccggttc taagcttaca gatgatatta agaaggcatt tgacgaatgc 1380
aaatctaatg ctattatatt gaagaaaaag atacttgaca atgatgaaga ttataagatt 1440
aattttaggg aaatggtgaa tgaagtaaca tgtgcaaaca caaaatttga agccctaaat 1500
gatttgataa tttccgactg tgagaaaaaa ggtattaaga taaacagaga tgtgatttca 1560
agctacaaat tgcttctttc cacaatcacc tatattgttg gagctggagt tgaagctgta 1620
actgttagtg tgtctgctac atctaatgga actgaatctg gtggagctgg tagtggaact 1680
ggaactagtg tgtctgctac atctacttta actggtaatg gtggaactga atctggtgga 1740
acagctggaa ctactacgtc tagtggaact gaagctggtg gaactagtgg aactactacg 1800
tctagtggag ctgctagtgg taaagctgga actggaacag ctggaactac tacgtctagt 1860
gaaggtgctg gtagtgataa agctggaact ggaactagtg gaactactac gtctagtgga 1920
actggtgctg gtggagctgg tagtggtgga cctagtggac atgcttctaa tgcaaaaatt 1980
cctggaataa tgacactaac tctatttgca ttattaacat ttattgtaaa ttga   2034

<210> 144
<211> 677
<212> PRT
<213> Babesia

<400> 144
Met Gln His His His His His His Ile Pro Glu Pro Asn Ala Asp Ser
                    5   10   15

Glu Ser Val His Val Glu Ile Gln Glu His Asp Asn Ile Asn Pro Gln
                20   25   30

Asp Ala Cys Asp Ser Glu Pro Leu Glu Gln Met Asp Ser Asp Thr Arg
            35   40   45

Val Leu Pro Glu Ser Leu Asp Glu Gly Val Pro His Gln Phe Ser Arg
        50   55   60

Leu Gly His His Ser Asp Met Ala Ser Asp Ile Asn Asp Glu Glu Pro
    65   70   75   80

Ser Phe Lys Ile Gly Glu Asn Asp Ile Ile Gln Pro Pro Trp Glu Asp
                85   90   95

Thr Ala Pro Tyr His Ser Ile Asp Asp Glu Glu Leu Asp Asn Leu Met
                100   105   110

Arg Leu Thr Ala Gln Glu Thr Ser Asp Asp His Glu Glu Gly Asn Gly
            115   120   125

Lys Leu Asn Thr Asn Lys Ser Glu Lys Thr Glu Arg Lys Ser His Asp
    130   135   140

Thr Gln Thr Pro Gln Glu Ile Tyr Glu Glu Leu Asp Asn Leu Leu Arg
145   150   155   160

Leu Thr Ala Gln Glu Ile Tyr Glu Glu Arg Lys Glu Gly His Gly Lys
                165   170   175

Pro Asn Thr Asn Lys Ser Glu Lys Ala Glu Arg Lys Ser His Asp Thr
            180   185   190

Gln Thr Thr Gln Glu Ile Cys Glu Glu Cys Glu Glu Gly His Asp Lys
            195   200   205

Ile Asn Lys Asn Lys Ser Gly Asn Ala Gly Ile Lys Ser Tyr Asp Thr
    210   215   220

Gln Thr Thr Gln Glu Ile Cys Glu Glu Cys Glu Glu Gly His Asp Lys
225   230   235   240

Ile Asn Lys Asn Lys Ser Gly Asn Ala Gly Ile Lys Ser Tyr Asp Thr
                245   250   255

Gln Thr Pro Gln Glu Thr Ser Asp Ala His Glu Glu Gly His Asp Lys
        260   265   270

Ile Asn Thr Asn Lys Ser Glu Lys Ala Glu Arg Lys Ser His Asp Thr
        275   280   285

Gln Thr Thr Gln Glu Ile Cys Glu Glu Cys Glu Glu Gly His Asp Lys
        290   295   300

Ile Asn Lys Asn Lys Ser Gly Asn Ala Gly Ile Lys Ser Tyr Asp Thr
305   310   315   320

Gln Thr Pro Gln Glu Thr Ser Asp Ala His Glu Glu Glu His Gly Asn
        325   330   335

Leu Asn Lys Asn Lys Ser Gly Lys Ala Gly Ile Lys Ser His Asn Thr
        340   345   350

Gln Thr Pro Leu Lys Lys Lys Asp Phe Cys Lys Glu Gly Cys His Gly
        355   360   365

Cys Asn Asn Lys Pro Glu Asp Asn Glu Arg Asp Pro Ser Ser Pro Asp
        370   375   380

Asp Asp Gly Gly Cys Glu Cys Gly Met Thr Asn His Phe Val Phe Asp
385   390   395   400

Tyr Lys Thr Thr Leu Leu Leu Lys Ser Leu Lys Thr Glu Thr Ser Thr
                405   410   415

His Tyr Tyr Ile Ala Met Ala Ala Ile Phe Thr Ile Ser Leu Phe Pro
        420   425   430

Cys Met Phe Lys Ala Phe Leu Gly Ser Ser Gly Gly Ser Gly Ser Lys
        435   440   445

Leu Thr Asp Asp Ile Lys Lys Ala Phe Asp Glu Cys Lys Ser Asn Ala
        450   455   460

Ile Ile Leu Lys Lys Lys Ile Leu Asp Asn Asp Glu Asp Tyr Lys Ile
465   470   475   480

Asn Phe Arg Glu Met Val Asn Glu Val Thr Cys Ala Asn Thr Lys Phe
                485   490   495

Glu Ala Leu Asn Asp Leu Ile Ile Ser Asp Cys Glu Lys Lys Gly Ile
        500   505   510

Lys Ile Asn Arg Asp Val Ile Ser Ser Tyr Lys Leu Leu Leu Ser Thr
        515   520   525

Ile Thr Tyr Ile Val Gly Ala Gly Val Glu Ala Val Thr Val Ser Val
        530   535   540

```
Ser Ala Thr Ser Asn Gly Thr Glu Ser Gly Gly Ala Gly Ser Gly Thr
545             550             555                 560

Gly Thr Ser Val Ser Ala Thr Ser Thr Leu Thr Gly Asn Gly Gly Thr
            565             570             575

Glu Ser Gly Gly Thr Ala Gly Thr Thr Thr Ser Ser Gly Thr Glu Ala
            580             585             590

Gly Gly Thr Ser Gly Thr Thr Thr Ser Ser Gly Ala Ala Ser Gly Lys
        595             600             605

Ala Gly Thr Gly Thr Ala Gly Thr Thr Thr Ser Ser Glu Gly Ala Gly
    610             615             620

Ser Asp Lys Ala Gly Thr Gly Thr Ser Gly Thr Thr Thr Ser Ser Gly
625             630             635             640

Thr Gly Ala Gly Gly Ala Gly Ser Gly Gly Pro Ser Gly His Ala Ser
            645             650             655

Asn Ala Lys Ile Pro Gly Ile Met Thr Leu Thr Leu Phe Ala Leu Leu
        660             665             670

Thr Phe Ile Val Asn
        675
```

```
<210> 145
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 145
gacgagttaa atttggatca agcaac                                        26

<210> 146
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 146
cataactcga gtcatcaatg aactttcagg                                    30

<210> 147
<211> 30
<212> DNA
<213> Artificial Sequence
```

<220>
<223> Primer

<400> 147
gatgttatca ctaggaccgt ttcatacacc   30

<210> 148
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 148
cataagaatt catcagtgct tggccagtgg   30

<210> 149
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 149
gtgaatgcat tgatcaagga gttgaacgct c   31

<210> 150
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 150
cccctcgagg tcgacggtat cgataagc   28

<210> 151
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 151
ctgagagtga aggatgcgtc ttccacagag   30

<210> 152
<211> 30
<212> DNA
<213> Artificial Sequence

```
<220>
<223> Primer

<400> 152
ctcgaactcg agctacagaa agtaggatac                                    30


<210> 153
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 153
cattttatta cattcttttt aacaagtgg                                     29


<210> 154
<211> 37
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 154
ccgagaattc attaatttag aattaatatt aatgcag                             37


<210> 155
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 155
cgcctcactc tgactttggc aacaaac                                        27


<210> 156
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 156
cttgtagaat tcactagaaa gaacttgtta gttggg                             36


<210> 157
<211> 30
<212> DNA
```

<213> Artificial Sequence

<220>
<223> Primer

<400> 157
gagggctatt tagatctcga tttgaattcc   30

<210> 158
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 158
caatactcga gttatcaggc acgagcattc   30

<210> 159
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 159
ggttctcgtt tctctgagat ggggtcaaga ttctctgtg   39

<210> 160
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 160
ccaatagaat tcatcaacct ggggcatggg gtgtag   36

<210> 161
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 161
cgcctcactc tgactttggc aacaaac   27

<210> 162
<211> 36

<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 162
cttgtagaat tcactagaaa gaacttgtta gttggg   36

<210> 163
<211> 1906
<212> DNA
<213> Babesia microti

<400> 163
atgcagcatc accaccatca ccacgacgag ttaaatttgg atcaagcaac aattagaacc 60
cttgttgcac cattagaaga aattaaaaat gagcttaaga ctatttcctc tcagaaaata 120
gccgatgcca cagtaacccc ttctaccccc aataccaatg tgaacatcaa aacaattatc 180
agcaagatta agaaaatttt gatgataagt gagactattt catccacagc tcttgcacgt 240
ttatctgcag tattaagcat tcttggtagg gggacttcca caaatgtcat tccggaacgt 300
ctaactagta tcgttgttga tttgaaatcg gcaactgttc cacaggaagt ggcgcttaag 360
aatggagttt acaagttgaa ggaccaattt aagctaacgc acaagatgat acctgttttt 420
ggcagcgtgc aactgcagat tccagagaaa tcaacagtcg tgcagataag tgtagtagag 480
catgaaaatg ataccaaaat ggcaatcatc acccttgatg atcattcgaa attgactttg 540
gaaagggtga ttctttcaga aacccctact gttgttggtt taacccacac cacacaagat 600
ccactggatg tattgctatc aatatttgtc aagatggata atacaacgga tgatgggggtt 660
atggagggct atttagatct cgatttgaat tccaagattg gtaactttat ttcggccatc 720
gaactcactg acctgaccaa cacggtaaaa tcagcgagcg tccaccctcc ccaactaaaa 780
gtgttggctc tgaagtttgg caacaagatc gttgatgtcg aggagacagg caggacattt 840
gttacatttg atgagaagtt gaattcaata gaaataatta ccttcgaaaa tgatggcact 900
atgacatcaa aattttattc cagggagtcc ctagacccaa caacctacat cggacatgca 960
cctacagaca tatttacgtc gccatggatc acgacccaca tgcataacaa gcgtcttgtt 1020
gactttgaag ttccatttga agcaattttt gatgataaac tcataagtta ttataccggt 1080
acggatgtca acggcaagaa taaggttcct gcagagctta ccaaggcaat atgcggcaaa 1140
gaagacgtgt gtgagcttaa cattaccggt ttattgttga agatattag tgctaagaaa 1200
ttggaggagt gtaggaagaa gaatgcatct agtggtactc catctggtgg tacaccttct 1260
aatgttccag aggagtgtgt gattaaaagc aacttacaga cggttatgaa gaaggatgtt 1320
actacaactt tgaaatcgga tgatgtcagc aattacagtg ttgtatccat tcacttttac 1380
attgataacg tgttcagaca taatactgct tttggcagaa ttaagattgg caaccttgat 1440
ctaccagcat tttccattgg gtttatccac tcgatcttcg tcgagagggt tctcatgggt 1500
gacaagagcc ttgccagtgt tggcattata actaactacg tccaagtgg agactatgag 1560
ttgttgagat acatgcaagt tgaggaaggg aagaattatt tcaaactcgt acaggggcca 1620
gaaataacag ctgattatat tggatctggg ttgactaaac acaagaggct gaccatgaat 1680
ggcgcctcca ccggttcaat tggatttgaa accaactaca aggaatcgat actcttcaat 1740
gagtttatgc gtccaaccaa caagatagtc accctcttct atacggatag tgaaactgtc 1800
aatcttatca agctgcactc attggagaat gtaaagcatg tgttactta ttcaatttac 1860
ggtgccttcc caattgaaga atcatctcct gaaagttcat tgatga 1906

<210> 164
<211> 711
<212> DNA
<213> Babesia microti

<400> 164
```
atgcagcatc accaccatca ccacgatgtt atcactagga ccgtttcata caccactaaa 60
tatcctttga ttgttgttag gattcaagat aagacttcga gttctacttc aaccgtttac 120
tatgagcaat ctggtttaca atctagcaaa tttgttttga gggatgaccc agaatttatt 180
attcctcaaa atcgaagtag tacttataca gtcaatgaca taacatataa atcatttgat 240
atttctagtg ccgatgataa cgaattttta aaaatatcat taagtgatgg gagcatgttg 300
tacaccaata atccagattc caaaatttac atcagcgaag ttaaggttgg tgagataaca 360
ataccaataa atataacatc acaatataca ctgatcaaat tatcatttaa tggtgaattg 420
gttgagttgt atactacagg atgtttcggt gaacataata ttaaaaagtt taggaaagta 480
ggttctacct ataatgatat atctaacgct tttgacattg tgccttggat tccagctcat 540
tttgtcgtga ctcagaaagt ggattttct ataccttttg atttatttga atcaaattat 600
cacagcattt tactaccagc aggtgtgaac cattctatcc acattaatac tgaaacaggg 660
aatgtggatt cagttgtttt tttcttgaat ccactggcca agcactgatg a 711
```

<210> 165
<211> 1248
<212> DNA
<213> Babesia microti

<400> 165
```
atgcagcatc accaccatca ccacgtgaat gcattgatca aggagttgaa cgctcatatt 60
aaacagagag caacatctac aacaacaatt attattgaaa ctaatgctaa agatgtggat 120
gagttagtga aaaaatttgc aacaattgca tcttttgatg ataagttcaa gaacgtattc 180
tttgataatt ctgttattga tgaaattgtc aaaacgttgg aaaagatgaa ggttgagtca 240
gatactgtat tacctagttg caatggaatc cagaccactg aaaactctag tactgaccca 300
tatacagtat tatcaaaact tataaagaaa attaacgact ccataatcag acctatgact 360
tctcggctga tcaacaaatc ctttccggag ttgtgcaagt gtttataaa aatgcccgat 420
gtcgactcca acaaattat ggctttggat gtggacataa gcaacactct tgtaaacagg 480
agagtcagat attctgatgg cagatttacc attgtaagca ctgggtccaa ttttagatac 540
acattggcac caactgccgc tggtcatgat ttgtctctct tctcccaatt gccaatctca 600
atgattacgg tcacatcgcc tcaggagcag gcacttacat cttgcgtcag tcatggtaac 660
gaattcagca tagtaagcac tgcaggcaag acaacttaca ctacacaatc taagttgttg 720
tcactttttca agttatctgc ggagacgtta agggatttta atgaagctag atttgcactt 780
ggtaacatga ctgatagtgc taataaatct aaagctttgg aggtctacaa atcgacacta 840
actactatga aatcaatatc agtcgaattg gaaaagattt ttggcatatt aaaatcaact 900
ccgaatatta cttttgaatc agttgtttct aaatacaaat tgactggtgt taatacagtt 960
gatactgcca atgctgatgt gatcaacgag acaatgtttg acgatttgtc caaggcaatt 1020
tcctcatacc tatactccct catatctata attttttccgg aggatattaa aggtcaaggt 1080
acaagtgaag gtcaacaaac aagtggaggt caggatacaa atgagacaat tttctcatac 1140
ctatactccc tcatatctat aattttttccg gaggatatta aaggtgccga attcgatatc 1200
aagcttatcg ataccgtcga cctcgagcac caccaccacc accactga 1248
```

<210> 166
<211> 1842
<212> DNA
<213> Babesia microti

<400> 166
```
atgcagcatc accaccatca ccacctgaga gtgaaggatg cgtcttccac agaggctacc 60
atacgcatgt tcctccgttt caacgcattt ataaaatttt tgaatgagga gaaatccaga 120
ggtgacaaaa gtgcgttgaa tgatgaggga ttgatgaggt ttatatcgat gaccagtgga 180
tttatcgatg accttgaatt agttttagat gagttatcca agcacagttt gcttataaat 240
aacgaaggtg ccaagagcat gctatcctct ctcatactaa gcttccgtta tattaatcac 300
ataagaaatt tgatcaatgg tatttacctt ggattgaata acccatcatc gtccattggt 360
```

```
gagacagcac aagaaacaac tgaaccctcc actcccactc ccactcccag cacacagaca 420
atcctgaaac cgaagggatc cgagataagg ggctatataa taaaagttga tcaaacagct 480
aatctcatca cattcataga tgcattgatc aaggagttga acgttcatat taaacagaca 540
acaacttcgt ctgttgttgg cactaaagaa actaatggca ctaccagtgg ttctcctgaa 600
agcaatcccg gttccaccga ttcaggttct attcaagctg aggtggcgga actattgaaa 660
aaatttgcaa caattgcatc ttttgacgag aagttcacga acttacacat taataaacct 720
tttgccgatg cacttattaa aaggttgaat gaaataaagg ctgaactatc atctaatagt 780
ggaacccctc ccaaattacc cgatatatca tgtttaagac tatcagaaat tgtgcagaaa 840
cttaaccgtt taatcaaatt taatacttct cggctgatca acaaatcctt tccggagttg 900
tgcaagttgt ttataaaaat gcccgatgtc gactccaaca aatttatggc tttggatgtg 960
gacataagca acactcttgt aaacaggaga gtcagatatt ctgatggtag atttaccatt 1020
gtaagcactg ggtccaattt tagatacaca ttggcaccaa ctgccgctgg tcatgatttg 1080
tctctcttct cccaattgcc aatctcaatg attacggtca catcgcctca ggagcaggca 1140
cttacatctt gcgtcagtca tggtaacgaa ttcagcatag taagcactgc aggcaagaca 1200
acttacacta cacaatctaa gttgttgtca cttttcaagt tatctgcgga gacgttaagg 1260
gattttaatg aagctagatt tgcacttggt aacatgactg atagtgctaa taaatctaaa 1320
gctttggagg tctacaaatc gacactaact actatgaaat caatatcagt cgaattggaa 1380
aagatttttg gcatattaaa atcaactccg aatattactt ttgaatcagt tgtttctaaa 1440
tacaaattga ctggtgttaa tacagttgat actgccaatg ctgatgtgat caacgagaca 1500
atgtttgacg atttgtccaa ggcaatttcc tcatacctat actccctcat atctataatt 1560
tttccggagg atattaaagg tcaaggtaca agtgaaggtc aacaaacaag tgaaggtcaa 1620
caaacaagtg aaggtcaaca aacaagtgga gatcaggata caagtggagg tcaggataca 1680
aatgagacaa ttttctcata cctatactcc ctcatatcta taattttttcc ggaggatatt 1740
aaaggtcaag gtacaagtgc tcaattattg gagtatagaa ctcaattggc atctctgagc 1800
aagatcaaat ctctcagaaa aaaaataaaa agaaggctct ga                    1842
```

<210> 167
<211> 918
<212> DNA
<213> Babesia microti

<400> 167
```
atgcagcatc accaccatca ccaccatttt attacattct ttttaacaag tggaaatgtc 60
tttgcaggaa atggtgatgt taatcaatat tcaagtgatt ttggacgagc attaaacgat 120
cttatgatcg cttttaacga ggctaaaaaa atgtatgcaa aattttctga acagatcacg 180
gacactatga ttcatacctg caaaaatagt attgatatac tagaagcaga tgagaagaat 240
ggtggtcata aaaattacct tgaaaagaaa gaaattgagc tcaaaagtaa aattgtggaa 300
tttaacgcca ttttttcaaa cattgattta aataatagta cggttaaaaa tgaaataatt 360
aaactgctta atgatatatc cactatctct accgatatta agtcaattgt tgatgaaata 420
tactataagg ctcttggtac aattgaaggt gaaaatgctg aaaattttga gtatgaaatt 480
aagaaaaaga aagctgaact acttagaaac ctgctgaatg ataatattaa accaattatg 540
ggatatttaa ctgagatata caatatgcac ataccaatta tatcaaataa aagcgaattt 600
aatgatatca agaaagcatt tgaaaagcac gaattagaag ctaatgtttt gatatccaag 660
atattagaaa ataatcagaa ttttggcact aattttaatg acattttaaa tgaagtgaat 720
ggtgcaattg aagaatttaa taaaactatt gacgtcatga ataacaccat tggggacctt 780
ggtattgtta ttgacagcgg tattatttca agcataaaat catatatttc cacaatcgcc 840
aagatttcta attcaataat ccctggacaa atggcactag tttttactgc attaatatta 900
attctaaatt aatgatga                                               918
```

<210> 168
<211> 696
<212> DNA
<213> Babesia microti

<400> 168
atgcagcatc accaccatca ccaccgcctc actctgactt tggcaacaaa cactagagga 60
ggcgcaggta ccgatgccac aagtgtgagt atagcaaatt caataccTac ttcagcagca 120
accgccgctc aatcaacaac agctgctaca tcaacaacag ctgctacatc aacaacatct 180
gctacatcaa caacatctgc tacatcaaca acagctacca catcaacaac aactgccaca 240
tcaacaacaa ctgccacatc aacaacagct accacatcaa caacagctgc cacatcaaca 300
atttctccgt ctctggagac cacacaagat gttgctgtca caaatattgt gaatcttaac 360
ataaacgaaa taggatttgt tgatcaagtt ccagagggtc tttcttctag ttacgttttt 420
tctactgatg gaatctttac caaagttacc ccagctacag ggttttcaat tggttgtgta 480
atatttggca atcaattaat tccacagtcc atggatgtta tcactaggac cgtttcatac 540
accactaaat atcctttgat tgttgttagg attcaagata agacttcgag ttctacttca 600
accgtttact atgagcaatc tggtttacaa tctagcaaat ttgttttgag ggatgaccca 660
gaatttacat cccaactaac aagttctttc tagtga 696

<210> 169
<211> 786
<212> DNA
<213> Babesia microti

<400> 169
atgcagcatc accaccatca ccacggttct cgtttctctg agatggggtc aagattctct 60
gtgtctccct gggcctggct ggaatgtccc tcctgtcttc caagtcctct gttccaggtg 120
accatgtccc catcccagtc ccctcgatgg tcctcatgcc ctcctctcag ttcctggctg 180
ctcccccacc cccgccacat ccccatcaag gactgccggc tctcatactg ctacccatgc 240
agggtgctca tgcccctgcg ccccggcacc tctagtgctt ccgtcccctc ccggccccac 300
tcagcgccac cccatgtcgc agggccgccg tccgcgccac gggacctgca gtacagcttg 360
agccgctccc ccctggcgct gcgactgcgg tggctgccgc ctgcggactc cggcggtcgt 420
tccgacgtca cctactcgct gctgtgcctg ctctgcggcc gcgacggtcc ggcgggcgca 480
tgccaaccct gcgggccacg cgtggccttc gtcccgcgtc aggcagggtt gcgagaacgc 540
gccgccacgc tgctgcacct gcggccgggc gcgcgctata ccgtgcgcgt ggccgcgctc 600
aacggtgtct caggcccagc ggccgccgcg gaagccacct acgcgcaggt caccgtgtcc 660
accggacccg gaggtgaggc cacgcgcccc agcggagtcc gtccccctcc ccaaccgcag 720
ttccctctat gcattccaag tcattcagga acccacgtga ctacacccca tgccccaggt 780
tgatga 786

<210> 170
<211> 561
<212> DNA
<213> Babesia microti

<400> 170
atgcagcatc accaccatca ccacgagggc tatttagatc tcgatttgaa ttccaagatt 60
ggtaacttta tttcagccat cgaactcact aacctgacca acacggtaaa atcagcgagc 120
gtccaccctc cccaactaaa agtgttggct ctgaagtttg gcaacaagat cgttgatgtc 180
gaggagacag gcaggacatt tgttacattt gatgagaagt tgaattcaat agaaataatt 240
accttcgaaa atgatggcac tatgacatca aaattttatt ccagggagtc cctagactca 300
acaacctaca ttggacatgc ctctacgtac acacttcccg aagtgcttac caggtcatta 360
tgtggtaaag aggacttatg tacgcttgac attacggatc tattgttgaa agagattagt 420
gctaagaaat tggaggagtg taggaagaag aatgcatcta gtggtactcc atctggtggt 480
acaccttcta atgttccaga ggagtgtgta attagaacca acttacagat ggttatgaag 540
aagaatgctc gtgcctgata a 561

<210> 171

<211> 897
<212> DNA
<213> Babesia microti

<400> 171
```
atgcagcatc accaccatca ccacgaggct aatatcagaa caaatcagac agtgaggata 60
tacttggctt tacaagaatc ctatttacac acacatgcac atgtactgtc agtatgtact 120
gctacatcaa caacatctgc tacatcaaca acagctacca catcaacaac aactgccaca 180
tcaacaacaa ctgccacatc aacaacagct accacatcaa caacagctgc cacatcaaca 240
atttctccgt ctctggagac cacacaagat gttgctgtca caaatattgt gaatcttaac 300
ataaacgaaa taggatttgt tgatcaagtt ccagagggtc tttcttctag ttacgttttt 360
tctactgatg gaatctttac caaagttacc ccagctacag ggttttcaat tggttgtgta 420
atatttggca atcaattaat tccacagtcc atggatgtta tcactaggac cgtttcatac 480
accactaaat atcctttgat tgttgttagg attcaagata agacttcgag ttctacttca 540
accgtttact atgagcaatc tggtttacaa tctagcaaat ttgtttttgag ggatgaccca 600
gaatttatta ttcctcaaaa tcgaagtagt acttatacag tcaatgacat aacatataaa 660
tcatttgata tttctagtgc cgatgataac gaattttaa aaatatcatt aagtgatggg 720
agcatgttgt acaccaataa tccagattcc aaaatttaca tcagcgaagt taaggttggt 780
gagataacaa taccaataaa tataacatca caatatacac tgatcaaatt atcatttaat 840
ggtgaattgg ttgagttgta tactacagga tgtttcggtg aacataatat ttgatga    897
```

<210> 172
<211> 635
<212> PRT
<213> Babesia microti

<400> 172
```
Met Gln His His His His His Asp Glu Leu Asn Leu Asp Gln Ala
              5                  10                  15

Thr Ile Arg Thr Leu Val Ala Pro Leu Glu Glu Ile Lys Asn Glu Leu
             20                  25                  30

Lys Thr Ile Ser Ser Gln Lys Ile Ala Asp Ala Thr Val Thr Pro Ser
         35                  40                  45

Thr Pro Asn Thr Asn Val Asn Ile Lys Thr Ile Ile Ser Lys Ile Lys
     50                  55                  60

Lys Ile Leu Met Ile Ser Glu Thr Ile Ser Ser Thr Ala Leu Ala Arg
 65                  70                  75                  80

Leu Ser Ala Val Leu Ser Ile Leu Gly Arg Gly Thr Ser Thr Asn Val
                 85                  90                  95

Ile Pro Glu Arg Leu Thr Ser Ile Val Val Asp Leu Lys Ser Ala Thr
                100                 105                 110

Val Pro Gln Glu Val Ala Leu Lys Asn Gly Val Tyr Lys Leu Lys Asp
            115                 120                 125

Gln Phe Lys Leu Thr His Lys Met Ile Pro Val Phe Gly Ser Val Gln
        130                 135                 140
```

Leu Gln Ile Pro Glu Lys Ser Thr Val Val Gln Ile Ser Val Val Glu
145   150   155   160

His Glu Asn Asp Thr Lys Met Ala Ile Ile Thr Leu Asp Asp His Ser
            165   170   175

Lys Leu Thr Leu Glu Arg Val Ile Leu Ser Glu Thr Pro Thr Val Val
            180   185   190

Gly Leu Thr His Thr Thr Gln Asp Pro Leu Asp Val Leu Leu Ser Ile
            195   200   205

Phe Val Lys Met Asp Asn Thr Thr Asp Asp Gly Val Met Glu Gly Tyr
    210   215   220

Leu Asp Leu Asp Leu Asn Ser Lys Ile Gly Asn Phe Ile Ser Ala Ile
225   230   235   240

Glu Leu Thr Asp Leu Thr Asn Thr Val Lys Ser Ala Ser Val His Pro
            245   250   255

Pro Gln Leu Lys Val Leu Ala Leu Lys Phe Gly Asn Lys Ile Val Asp
            260   265   270

Val Glu Glu Thr Gly Arg Thr Phe Val Thr Phe Asp Glu Lys Leu Asn
            275   280   285

Ser Ile Glu Ile Ile Thr Phe Glu Asn Asp Gly Thr Met Thr Ser Lys
            290   295   300

Phe Tyr Ser Arg Glu Ser Leu Asp Pro Thr Thr Tyr Ile Gly His Ala
305   310   315   320

Pro Thr Asp Ile Phe Thr Ser Pro Trp Ile Thr Thr His Met His Asn
            325   330   335

Lys Arg Leu Val Asp Phe Glu Val Pro Phe Glu Ala Ile Phe Asp Asp
            340   345   350

Lys Leu Ile Ser Tyr Tyr Thr Gly Thr Asp Val Asn Gly Lys Asn Lys
            355   360   365

Val Pro Ala Glu Leu Thr Lys Ala Ile Cys Gly Lys Glu Asp Val Cys
    370   375   380

Glu Leu Asn Ile Thr Gly Leu Leu Leu Lys Asp Ile Ser Ala Lys Lys
385   390   395   400

Leu Glu Glu Cys Arg Lys Lys Asn Ala Ser Ser Gly Thr Pro Ser Gly
            405   410   415

Gly Thr Pro Ser Asn Val Pro Glu Glu Cys Val Ile Lys Ser Asn Leu
            420   425   430

Gln Thr Val Met Lys Lys Asp Val Thr Thr Thr Leu Lys Ser Asp Asp
        435   440   445

Val Ser Asn Tyr Ser Val Val Ser Ile His Phe Tyr Ile Asp Asn Val
        450   455   460

Phe Arg His Asn Thr Ala Phe Gly Arg Ile Lys Ile Gly Asn Leu Asp
465   470   475   480

Leu Pro Ala Phe Ser Ile Gly Phe Ile His Ser Ile Phe Val Glu Arg
                485   490   495

Val Leu Met Gly Asp Lys Ser Leu Ala Ser Val Gly Ile Ile Thr Asn
                500   505   510

Tyr Gly Pro Ser Gly Asp Tyr Glu Leu Leu Arg Tyr Met Gln Val Glu
        515   520   525

Glu Gly Lys Asn Tyr Phe Lys Leu Val Gln Gly Pro Glu Ile Thr Ala
        530   535   540

Asp Tyr Ile Gly Ser Gly Leu Thr Lys His Lys Arg Leu Thr Met Asn
545   550   555   560

Gly Ala Ser Thr Gly Ser Ile Gly Phe Glu Thr Asn Tyr Lys Glu Ser
                565   570   575

Ile Leu Phe Asn Glu Phe Met Arg Pro Thr Asn Lys Ile Val Thr Leu
                580   585   590

Phe Tyr Thr Asp Ser Glu Thr Val Asn Leu Ile Lys Leu His Ser Leu
        595   600   605

Glu Asn Val Lys His Gly Val Thr Tyr Ser Ile Tyr Gly Ala Phe Pro
        610   615   620

Ile Glu Glu Ser Ser Pro Glu Ser Ser Leu Met
625   630   635

<210> 173
<211> 235
<212> PRT
<213> Babesia microti

<400> 173
Met Gln His His His His His His Asp Val Ile Thr Arg Thr Val Ser
                5   10   15

Tyr Thr Thr Lys Tyr Pro Leu Ile Val Val Arg Ile Gln Asp Lys Thr
            20   25   30

Ser Ser Ser Thr Ser Thr Val Tyr Tyr Glu Gln Ser Gly Leu Gln Ser
        35   40   45

Ser Lys Phe Val Leu Arg Asp Asp Pro Glu Phe Ile Ile Pro Gln Asn
    50   55   60

Arg Ser Ser Thr Tyr Thr Val Asn Asp Ile Thr Tyr Lys Ser Phe Asp
65   70   75   80

Ile Ser Ser Ala Asp Asp Asn Glu Phe Leu Lys Ile Ser Leu Ser Asp
                85   90   95

Gly Ser Met Leu Tyr Thr Asn Asn Pro Asp Ser Lys Ile Tyr Ile Ser
            100   105   110

Glu Val Lys Val Gly Glu Ile Thr Ile Pro Ile Asn Ile Thr Ser Gln
        115   120   125

Tyr Thr Leu Ile Lys Leu Ser Phe Asn Gly Glu Leu Val Glu Leu Tyr
    130   135   140

Thr Thr Gly Cys Phe Gly Glu His Asn Ile Lys Lys Phe Arg Lys Val
145   150   155   160

Gly Ser Thr Tyr Asn Asp Ile Ser Asn Ala Phe Asp Ile Val Pro Trp
                165   170   175

Ile Pro Ala His Phe Val Val Thr Gln Lys Val Asp Phe Ser Ile Pro
            180   185   190

Phe Asp Leu Phe Glu Ser Asn Tyr His Ser Ile Leu Leu Pro Ala Gly
        195   200   205

Val Asn His Ser Ile His Ile Asn Thr Glu Thr Gly Asn Val Asp Ser
    210   215   220

Val Val Phe Phe Leu Asn Pro Leu Ala Lys His
225   230   235

<210> 174
<211> 415
<212> PRT
<213> Babesia microti

<400> 174
Met Gln His His His His His His Val Asn Ala Leu Ile Lys Glu Leu
                5   10   15

Asn Ala His Ile Lys Gln Arg Ala Thr Ser Thr Thr Thr Ile Ile Ile
            20   25   30

Glu Thr Asn Ala Lys Asp Val Asp Glu Leu Val Lys Lys Phe Ala Thr
    35   40   45

Ile Ala Ser Phe Asp Asp Lys Phe Lys Asn Val Phe Phe Asp Asn Ser

```
              50                    55                    60
Val Ile Asp Glu Ile Val Lys Thr Leu Glu Lys Met Lys Val Glu Ser
65                    70                    75                    80

Asp Thr Val Leu Pro Ser Cys Asn Gly Ile Gln Thr Thr Glu Asn Ser
                   85                    90                    95

Ser Thr Asp Pro Tyr Thr Val Leu Ser Lys Leu Ile Lys Lys Ile Asn
               100                   105                   110

Asp Ser Ile Ile Arg Pro Met Thr Ser Arg Leu Ile Asn Lys Ser Phe
           115                   120                   125

Pro Glu Leu Cys Lys Leu Phe Ile Lys Met Pro Asp Val Asp Ser Asn
           130                   135                   140

Lys Phe Met Ala Leu Asp Val Asp Ile Ser Asn Thr Leu Val Asn Arg
145                   150                   155                   160

Arg Val Arg Tyr Ser Asp Gly Arg Phe Thr Ile Val Ser Thr Gly Ser
               165                   170                   175

Asn Phe Arg Tyr Thr Leu Ala Pro Thr Ala Ala Gly His Asp Leu Ser
               180                   185                   190

Leu Phe Ser Gln Leu Pro Ile Ser Met Ile Thr Val Thr Ser Pro Gln
           195                   200                   205

Glu Gln Ala Leu Thr Ser Cys Val Ser His Gly Asn Glu Phe Ser Ile
       210                   215                   220

Val Ser Thr Ala Gly Lys Thr Thr Tyr Thr Thr Gln Ser Lys Leu Leu
225                   230                   235                   240

Ser Leu Phe Lys Leu Ser Ala Glu Thr Leu Arg Asp Phe Asn Glu Ala
               245                   250                   255

Arg Phe Ala Leu Gly Asn Met Thr Asp Ser Ala Asn Lys Ser Lys Ala
           260                   265                   270

Leu Glu Val Tyr Lys Ser Thr Leu Thr Thr Met Lys Ser Ile Ser Val
           275                   280                   285

Glu Leu Glu Lys Ile Phe Gly Ile Leu Lys Ser Thr Pro Asn Ile Thr
       290                   295                   300

Phe Glu Ser Val Val Ser Lys Tyr Lys Leu Thr Gly Val Asn Thr Val
305                   310                   315                   320

Asp Thr Ala Asn Ala Asp Val Ile Asn Glu Thr Met Phe Asp Asp Leu
               325                   330                   335

Ser Lys Ala Ile Ser Ser Tyr Leu Tyr Ser Leu Ile Ser Ile Ile Phe
```

```
                340                      345                          350
Pro Glu Asp Ile Lys Gly Gln Gly Thr Ser Glu Gly Gln Gln Thr Ser
        355                  360                  365

Gly Gly Gln Asp Thr Asn Glu Thr Ile Phe Ser Tyr Leu Tyr Ser Leu
        370                  375                  380

Ile Ser Ile Ile Phe Pro Glu Asp Ile Lys Gly Ala Glu Phe Asp Ile
385                  390                  395                  400

Lys Leu Ile Asp Thr Val Asp Leu Glu His His His His His
                405                  410                  415


<210> 175
<211> 613
<212> PRT
<213> Babesia microti

<400> 175
Met Gln His His His His His His Leu Arg Val Lys Asp Ala Ser Ser
                    5                  10                  15

Thr Glu Ala Thr Ile Arg Met Phe Leu Arg Phe Asn Ala Phe Ile Lys
            20                  25                  30

Phe Leu Asn Glu Glu Lys Ser Arg Gly Asp Lys Ser Ala Leu Asn Asp
        35                  40                  45

Glu Gly Leu Met Arg Phe Ile Ser Met Thr Ser Gly Phe Ile Asp Asp
    50                  55                  60

Leu Glu Leu Val Leu Asp Glu Leu Ser Lys His Ser Leu Leu Ile Asn
65                  70                  75                  80

Asn Glu Gly Ala Lys Ser Met Leu Ser Ser Leu Ile Leu Ser Phe Arg
                85                  90                  95

Tyr Ile Asn His Ile Arg Asn Leu Ile Asn Gly Ile Tyr Leu Gly Leu
                100                 105                 110

Asn Asn Pro Ser Ser Ser Ile Gly Glu Thr Ala Gln Glu Thr Thr Glu
        115                 120                 125

Pro Ser Thr Pro Thr Pro Thr Pro Ser Thr Gln Thr Ile Leu Lys Pro
    130                 135                 140

Lys Gly Ser Glu Ile Arg Gly Tyr Ile Ile Lys Val Asp Gln Thr Ala
145                 150                 155                 160

Asn Leu Ile Thr Phe Ile Asp Ala Leu Ile Lys Glu Leu Asn Val His
                    165                 170                 175
```

```
Ile Lys Gln Thr Thr Thr Ser Ser Val Val Gly Thr Lys Glu Thr Asn
        180             185             190

Gly Thr Thr Ser Gly Ser Pro Glu Ser Asn Pro Gly Ser Thr Asp Ser
        195             200             205

Gly Ser Ile Gln Ala Glu Val Ala Glu Leu Leu Lys Lys Phe Ala Thr
        210             215             220

Ile Ala Ser Phe Asp Glu Lys Phe Thr Asn Leu His Ile Asn Lys Pro
225             230             235             240

Phe Ala Asp Ala Leu Ile Lys Arg Leu Asn Glu Ile Lys Ala Glu Leu
        245             250             255

Ser Ser Asn Ser Gly Thr Pro Pro Lys Leu Pro Asp Ile Ser Cys Leu
        260             265             270

Arg Leu Ser Glu Ile Val Gln Lys Leu Asn Arg Leu Ile Lys Phe Asn
        275             280             285

Thr Ser Arg Leu Ile Asn Lys Ser Phe Pro Glu Leu Cys Lys Leu Phe
        290             295             300

Ile Lys Met Pro Asp Val Asp Ser Asn Lys Phe Met Ala Leu Asp Val
305             310             315             320

Asp Ile Ser Asn Thr Leu Val Asn Arg Arg Val Arg Tyr Ser Asp Gly
        325             330             335

Arg Phe Thr Ile Val Ser Thr Gly Ser Asn Phe Arg Tyr Thr Leu Ala
        340             345             350

Pro Thr Ala Ala Gly His Asp Leu Ser Leu Phe Ser Gln Leu Pro Ile
        355             360             365

Ser Met Ile Thr Val Thr Ser Pro Gln Glu Gln Ala Leu Thr Ser Cys
        370             375             380

Val Ser His Gly Asn Glu Phe Ser Ile Val Ser Thr Ala Gly Lys Thr
385             390             395             400

Thr Tyr Thr Thr Gln Ser Lys Leu Leu Ser Leu Phe Lys Leu Ser Ala
        405             410             415

Glu Thr Leu Arg Asp Phe Asn Glu Ala Arg Phe Ala Leu Gly Asn Met
        420             425             430

Thr Asp Ser Ala Asn Lys Ser Lys Ala Leu Glu Val Tyr Lys Ser Thr
        435             440             445

Leu Thr Thr Met Lys Ser Ile Ser Val Glu Leu Glu Lys Ile Phe Gly
        450             455             460
```

Ile Leu Lys Ser Thr Pro Asn Ile Thr Phe Glu Ser Val Val Ser Lys
465   470   475   480

Tyr Lys Leu Thr Gly Val Asn Thr Val Asp Thr Ala Asn Ala Asp Val
                    485   490   495

Ile Asn Glu Thr Met Phe Asp Asp Leu Ser Lys Ala Ile Ser Ser Tyr
                500   505   510

Leu Tyr Ser Leu Ile Ser Ile Ile Phe Pro Glu Asp Ile Lys Gly Gln
            515   520   525

Gly Thr Ser Glu Gly Gln Gln Thr Ser Glu Gly Gln Gln Thr Ser Glu
            530   535   540

Gly Gln Gln Thr Ser Gly Asp Gln Asp Thr Ser Gly Gly Gln Asp Thr
545   550   555   560

Asn Glu Thr Ile Phe Ser Tyr Leu Tyr Ser Leu Ile Ser Ile Ile Phe
                565   570   575

Pro Glu Asp Ile Lys Gly Gln Gly Thr Ser Ala Gln Leu Leu Glu Tyr
                580   585   590

Arg Thr Gln Leu Ala Ser Leu Ser Lys Ile Lys Ser Leu Arg Lys Lys
            595   600   605

Ile Lys Arg Arg Leu
        610

<210> 176
<211> 303
<212> PRT
<213> Babesia microti

<400> 176
Met Gln His His His His His His His Phe Ile Thr Phe Phe Leu Thr
                    5   10   15

Ser Gly Asn Val Phe Ala Gly Asn Gly Asp Val Asn Gln Tyr Ser Ser
                20   25   30

Asp Phe Gly Arg Ala Leu Asn Asp Leu Met Ile Ala Phe Asn Glu Ala
            35   40   45

Lys Lys Met Tyr Ala Lys Phe Ser Glu Gln Ile Thr Asp Thr Met Ile
        50   55   60

His Thr Cys Lys Asn Ser Ile Asp Ile Leu Glu Ala Asp Glu Lys Asn
65   70   75   80

Gly Gly His Lys Asn Tyr Leu Glu Lys Lys Glu Ile Glu Leu Lys Ser
                85   90   95

Lys Ile Val Glu Phe Asn Ala Ile Phe Ser Asn Ile Asp Leu Asn Asn
            100   105   110

Ser Thr Val Lys Asn Glu Ile Ile Lys Leu Leu Asn Asp Ile Ser Thr
         115   120   125

Ile Ser Thr Asp Ile Lys Ser Ile Val Asp Glu Ile Tyr Tyr Lys Ala
 130   135   140

Leu Gly Thr Ile Glu Gly Glu Asn Ala Glu Asn Phe Glu Tyr Glu Ile
145   150   155   160

Lys Lys Lys Lys Ala Glu Leu Leu Arg Asn Leu Leu Asn Asp Asn Ile
         165   170   175

Lys Pro Ile Met Gly Tyr Leu Thr Glu Ile Tyr Asn Met His Ile Pro
         180   185   190

Ile Ile Ser Asn Lys Ser Glu Phe Asn Asp Ile Lys Lys Ala Phe Glu
         195   200   205

Lys His Glu Leu Glu Ala Asn Val Leu Ile Ser Lys Ile Leu Glu Asn
         210   215   220

Asn Gln Asn Phe Gly Thr Asn Phe Asn Asp Ile Leu Asn Glu Val Asn
225   230   235   240

Gly Ala Ile Glu Glu Phe Asn Lys Thr Ile Asp Val Met Asn Asn Thr
         245   250   255

Ile Gly Asp Leu Gly Ile Val Ile Asp Ser Gly Ile Ile Ser Ser Ile
         260   265   270

Lys Ser Tyr Ile Ser Thr Ile Ala Lys Ile Ser Asn Ser Ile Ile Pro
         275   280   285

Gly Gln Met Ala Leu Val Phe Thr Ala Leu Ile Leu Ile Leu Asn
         290   295   300

<210> 177
<211> 230
<212> PRT
<213> Babesia microti

<400> 177
Met Gln His His His His His His Arg Leu Thr Leu Thr Leu Ala Thr
                  5   10   15

Asn Thr Arg Gly Gly Ala Gly Thr Asp Ala Thr Ser Val Ser Ile Ala
         20   25   30

```
Asn Ser Ile Pro Thr Ser Ala Ala Thr Ala Ala Gln Ser Thr Thr Ala
        35              40              45
```

```
Ala Thr Ser Thr Thr Ala Ala Thr Ser Thr Thr Ser Ala Thr Ser Thr
    50              55              60
```

```
Thr Ser Ala Thr Ser Thr Thr Ala Thr Thr Ser Thr Thr Thr Ala Thr
65              70              75              80
```

```
Ser Thr Thr Thr Ala Thr Ser Thr Thr Ala Thr Thr Ser Thr Thr Ala
            85              90              95
```

```
Ala Thr Ser Thr Ile Ser Pro Ser Leu Glu Thr Thr Gln Asp Val Ala
            100             105             110
```

```
Val Thr Asn Ile Val Asn Leu Asn Ile Asn Glu Ile Gly Phe Val Asp
        115             120             125
```

```
Gln Val Pro Glu Gly Leu Ser Ser Ser Tyr Val Phe Ser Thr Asp Gly
        130             135             140
```

```
Ile Phe Thr Lys Val Thr Pro Ala Thr Gly Phe Ser Ile Gly Cys Val
145             150             155             160
```

```
Ile Phe Gly Asn Gln Leu Ile Pro Gln Ser Met Asp Val Ile Thr Arg
                165             170             175
```

```
Thr Val Ser Tyr Thr Thr Lys Tyr Pro Leu Ile Val Val Arg Ile Gln
            180             185             190
```

```
Asp Lys Thr Ser Ser Ser Thr Ser Thr Val Tyr Tyr Glu Gln Ser Gly
        195             200             205
```

```
Leu Gln Ser Ser Lys Phe Val Leu Arg Asp Asp Pro Glu Phe Thr Ser
        210             215             220
```

```
Gln Leu Thr Ser Ser Phe
225             230
```

```
<210> 178
<211> 185
<212> PRT
<213> Babesia microti
```

```
<400> 178
Met Gln His His His His His His Glu Gly Tyr Leu Asp Leu Asp Leu
                5              10              15
```

```
Asn Ser Lys Ile Gly Asn Phe Ile Ser Ala Ile Glu Leu Thr Asn Leu
        20              25              30
```

```
Thr Asn Thr Val Lys Ser Ala Ser Val His Pro Pro Gln Leu Lys Val
        35              40              45
```

Leu Ala Leu Lys Phe Gly Asn Lys Ile Val Asp Val Glu Glu Thr Gly
        50   55   60

Arg Thr Phe Val Thr Phe Asp Glu Lys Leu Asn Ser Ile Glu Ile Ile
65   70   75   80

Thr Phe Glu Asn Asp Gly Thr Met Thr Ser Lys Phe Tyr Ser Arg Glu
                85   90   95

Ser Leu Asp Ser Thr Thr Tyr Ile Gly His Ala Ser Thr Tyr Thr Leu
            100   105   110

Pro Glu Val Leu Thr Arg Ser Leu Cys Gly Lys Glu Asp Leu Cys Thr
            115   120   125

Leu Asp Ile Thr Asp Leu Leu Leu Lys Glu Ile Ser Ala Lys Lys Leu
        130   135   140

Glu Glu Cys Arg Lys Lys Asn Ala Ser Ser Gly Thr Pro Ser Gly Gly
145   150   155   160

Thr Pro Ser Asn Val Pro Glu Glu Cys Val Ile Arg Thr Asn Leu Gln
                165   170   175

Met Val Met Lys Lys Asn Ala Arg Ala
            180   185

<210> 179
<211> 260
<212> PRT
<213> Babesia microti

<400> 179
Met Gln His His His His His His Gly Ser Arg Phe Ser Glu Met Gly
                    5   10   15

Ser Arg Phe Ser Val Ser Pro Trp Ala Trp Leu Glu Cys Pro Ser Cys
                20   25   30

Leu Pro Ser Pro Leu Phe Gln Val Thr Met Ser Pro Ser Gln Ser Pro
            35   40   45

Arg Trp Ser Ser Cys Pro Pro Leu Ser Ser Trp Leu Leu Pro His Pro
        50   55   60

Arg His Ile Pro Ile Lys Asp Cys Arg Leu Ser Tyr Cys Tyr Pro Cys
65   70   75   80

Arg Val Leu Met Pro Leu Arg Pro Gly Thr Ser Ser Ala Ser Val Pro
                85   90   95

Ser Arg Pro His Ser Ala Pro Pro His Val Ala Gly Pro Pro Ser Ala

```
              100                    105                    110
Pro Arg Asp Leu Gln Tyr Ser Leu Ser Arg Ser Pro Leu Ala Leu Arg
        115                    120                    125

Leu Arg Trp Leu Pro Pro Ala Asp Ser Gly Gly Arg Ser Asp Val Thr
    130                    135                    140

Tyr Ser Leu Leu Cys Leu Leu Cys Gly Arg Asp Gly Pro Ala Gly Ala
145                    150                    155                    160

Cys Gln Pro Cys Gly Pro Arg Val Ala Phe Val Pro Arg Gln Ala Gly
            165                    170                    175

Leu Arg Glu Arg Ala Ala Thr Leu Leu His Leu Arg Pro Gly Ala Arg
            180                    185                    190

Tyr Thr Val Arg Val Ala Ala Leu Asn Gly Val Ser Gly Pro Ala Ala
        195                    200                    205

Ala Ala Glu Ala Thr Tyr Ala Gln Val Thr Val Ser Thr Gly Pro Gly
    210                    215                    220

Gly Glu Ala Thr Arg Pro Ser Gly Val Arg Pro Pro Pro Gln Pro Gln
225                    230                    235                    240

Phe Pro Leu Cys Ile Pro Ser His Ser Gly Thr His Val Thr Thr Pro
            245                    250                    255

His Ala Pro Gly
            260


<210> 180
<211> 297
<212> PRT
<213> Babesia microti

<400> 180
Met Gln His His His His His Glu Ala Asn Ile Arg Thr Asn Gln
                5                    10                    15

Thr Val Arg Ile Tyr Leu Ala Leu Gln Glu Ser Tyr Leu His Thr His
            20                    25                    30

Ala His Val Leu Ser Val Cys Thr Ala Thr Ser Thr Thr Ser Ala Thr
        35                    40                    45

Ser Thr Thr Ala Thr Thr Ser Thr Thr Thr Ala Thr Ser Thr Thr Thr
    50                    55                    60

Ala Thr Ser Thr Thr Ala Thr Thr Ser Thr Thr Ala Ala Thr Ser Thr
65                    70                    75                    80
```

Ile Ser Pro Ser Leu Glu Thr Thr Gln Asp Val Ala Val Thr Asn Ile
                85   90   95

Val Asn Leu Asn Ile Asn Glu Ile Gly Phe Val Asp Gln Val Pro Glu
            100   105   110

Gly Leu Ser Ser Ser Tyr Val Phe Ser Thr Asp Gly Ile Phe Thr Lys
            115   120   125

Val Thr Pro Ala Thr Gly Phe Ser Ile Gly Cys Val Ile Phe Gly Asn
    130   135   140

Gln Leu Ile Pro Gln Ser Met Asp Val Ile Thr Arg Thr Val Ser Tyr
145   150   155   160

Thr Thr Lys Tyr Pro Leu Ile Val Val Arg Ile Gln Asp Lys Thr Ser
                165   170   175

Ser Ser Thr Ser Thr Val Tyr Tyr Glu Gln Ser Gly Leu Gln Ser Ser
            180   185   190

Lys Phe Val Leu Arg Asp Asp Pro Glu Phe Ile Ile Pro Gln Asn Arg
            195   200   205

Ser Ser Thr Tyr Thr Val Asn Asp Ile Thr Tyr Lys Ser Phe Asp Ile
    210   215   220

Ser Ser Ala Asp Asp Asn Glu Phe Leu Lys Ile Ser Leu Ser Asp Gly
225   230   235   240

Ser Met Leu Tyr Thr Asn Asn Pro Asp Ser Lys Ile Tyr Ile Ser Glu
                245   250   255

Val Lys Val Gly Glu Ile Thr Ile Pro Ile Asn Ile Thr Ser Gln Tyr
            260   265   270

Thr Leu Ile Lys Leu Ser Phe Asn Gly Glu Leu Val Glu Leu Tyr Thr
            275   280   285

Thr Gly Cys Phe Gly Glu His Asn Ile
    290   295

<210> 181
<211> 25
<212> PRT
<213> B. microti

<400> 181
Thr Gly Thr Ala Gly Thr Thr Thr Ser Ser Glu Gly Ala Gly Ser Asp
                5   10   15

Lys Ala Gly Thr Gly Thr Ser Gly Thr
            20   25

<210> 182
<211> 25
<212> PRT
<213> B. microti

<400> 182
Glu Ala Gly Gly Thr Ser Gly Thr Thr Thr Ser Ser Gly Ala Ala Ser
                  5   10   15

Gly Lys Ala Gly Thr Gly Thr Ala Gly
              20   25

<210> 183
<211> 25
<212> PRT
<213> B. microti

<400> 183
Thr Gly Asn Gly Gly Thr Glu Ser Gly Gly Thr Ala Gly Thr Thr Thr
                  5   10   15

Ser Ser Gly Thr Glu Ala Gly Gly Thr
              20   25

<210> 184
<211> 25
<212> PRT
<213> B. microti

<400> 184
Thr Glu Ser Gly Gly Ala Gly Ser Gly Thr Gly Thr Ser Val Ser Ala
                  5   10   15

Thr Ser Thr Leu Thr Gly Asn Gly Gly
              20   25

<210> 185
<211> 25
<212> PRT
<213> B. microti

<400> 185
Tyr Ile Val Gly Ala Gly Val Glu Ala Val Thr Val Ser Val Ser Ala
                  5   10   15

Thr Ser Asn Gly Thr Glu Ser Gly Gly
              20   25

<210> 186

<211> 25
<212> PRT
<213> B. microti

<400> 186
Gly Ile Lys Ile Asn Arg Asp Val Ile Ser Ser Tyr Lys Leu Leu Leu
                  5   10   15

Ser Thr Ile Thr Tyr Ile Val Gly Ala
              20   25

<210> 187
<211> 26
<212> PRT
<213> B. microti

<400> 187
Thr Cys Ala Asn Thr Lys Phe Glu Ala Leu Asn Asp Leu Ile Ile Ser
                  5   10   15

Asp Cys Glu Lys Lys Gly Ile Lys Ile Asn
              20   25

<210> 188
<211> 25
<212> PRT
<213> B. microti

<400> 188
Ile Leu Asp Asn Asp Glu Asp Tyr Lys Ile Asn Phe Arg Glu Met Val
                  5   10   15

Asn Glu Val Thr Cys Ala Asn Thr Lys
              20   25

<210> 189
<211> 27
<212> PRT
<213> B. microti

<400> 189
Pro Ser Gly His Ala Ser Asn Ala Lys Ile Pro Gly Ile Met Thr Leu
                  5   10   15

Thr Leu Phe Ala Leu Leu Thr Phe Ile Val Asn
              20   25

<210> 190
<211> 25
<212> PRT

<213> B. microti

<400> 190
Gly Thr Ser Gly Thr Thr Thr Ser Ser Gly Thr Gly Ala Gly Gly Ala
                    5   10   15

Gly Ser Gly Gly Pro Ser Gly His Ala
                20   25

<210> 191
<211> 25
<212> PRT
<213> B. microti

<400> 191
Asp Asp Ile Lys Lys Ala Phe Asp Glu Cys Lys Ser Asn Ala Ile Ile
                    5   10   15

Leu Lys Lys Lys Ile Leu Asp Asn Asp
                20   25

<210> 192
<211> 25
<212> PRT
<213> B. microti

<400> 192
Gly Asn Ala Gly Ile Lys Ser Tyr Asp Thr Gln Thr Thr Gln Glu Ile
                    5   10   15

Cys Glu Glu Cys Glu Glu Gly His Asp
                20   25

<210> 193
<211> 25
<212> PRT
<213> B. microti

<400> 193
Thr Gln Glu Ile Cys Glu Glu Cys Glu Glu Gly His Asp Lys Ile Asn
                    5   10   15

Lys Asn Lys Ser Gly Asn Ala Gly Ile
                20   25

<210> 194
<211> 50
<212> PRT
<213> B. microti

<400> 194
Gly Lys Pro Asn Thr Asn Lys Ser Glu Lys Ala Glu Arg Lys Ser His
                  5   10   15

Asp Thr Gln Thr Thr Gln Glu Ile Cys Glu Glu Gly Gly Thr Ser Gly
              20   25   30

Thr Thr Thr Ser Ser Gly Ala Ala Ser Gly Lys Ala Gly Thr Gly Thr
          35   40   45

Ala Gly
    50

<210> 195
<211> 26
<212> PRT
<213> B. microti

<400> 195
Gly Lys Pro Asn Thr Asn Lys Ser Glu Lys Ala Glu Arg Lys Ser His
                  5   10   15

Asp Thr Gln Thr Thr Gln Glu Ile Cys Glu
              20   25

<210> 196
<211> 25
<212> PRT
<213> B. microti

<400> 196
Leu Asp Asn Leu Leu Arg Leu Thr Ala Gln Glu Ile Tyr Glu Glu Arg
                  5   10   15

Lys Glu Gly His Gly Lys Pro Asn Thr
              20   25

<210> 197
<211> 25
<212> PRT
<213> B. microti

<400> 197
Ser Glu Lys Thr Glu Arg Lys Ser His Asp Thr Gln Thr Pro Gln Glu
                  5   10   15

Ile Tyr Glu Glu Leu Asp Asn Leu Leu
              20   25

<210> 198

<211> 25
<212> PRT
<213> B. microti

<400> 198
Ile Lys Ser Tyr Asp Thr Gln Thr Pro Gln Glu Thr Ser Asp Ala His
                5   10   15

Glu Glu Glu His Gly Asn Leu Asn Lys
            20   25

<210> 199
<211> 26
<212> PRT
<213> B. microti

<400> 199
Ile Cys Glu Glu Cys Glu Glu Gly His Asp Lys Ile Asn Lys Asn Lys
                5   10   15

Ser Gly Asn Ala Gly Ile Lys Ser Tyr Asp
            20   25

<210> 200
<211> 25
<212> PRT
<213> B. microti

<400> 200
Thr Ala Gln Glu Thr Ser Asp Asp His Glu Glu Gly Asn Gly Lys Leu
                5   10   15

Asn Thr Asn Lys Ser Glu Lys Thr Glu
            20   25

<210> 201
<211> 25
<212> PRT
<213> B. microti

<400> 201
Thr Asn Lys Ser Glu Lys Ala Glu Arg Lys Ser His Asp Thr Gln Thr
                5   10   15

Thr Gln Glu Ile Cys Glu Glu Cys Glu
            20   25

<210> 202
<211> 25
<212> PRT

<213> B. microti

<400> 202
Glu Glu Gly His Asp Lys Ile Asn Lys Asn Lys Ser Gly Asn Ala Gly
                5   10   15

Ile Lys Ser Tyr Asp Thr Gln Thr Pro
                20   25

<210> 203
<211> 25
<212> PRT
<213> B. microti

<400> 203
Asp Thr Gln Thr Pro Gln Glu Thr Ser Asp Ala His Glu Glu Gly His
                5   10   15

Asp Lys Ile Asn Thr Asn Lys Ser Glu
                20   25

<210> 204
<211> 1359
<212> DNA
<213> Babesia microti

<400> 204
taaaatatga caaaagattt aatgaacata ctgacatgaa tggtattcat tattattata 60
ttgatggtag tttacttgcg agtggcgaag ttacatctaa ttttcgttat atttctaaag 120
aatatgaata tgagcataca gaattagcaa aagagcattg caagaaagaa aaatgtgtaa 180
atgtggataa cattgaggat aataatttga aaatatatgc gaaacagttt aaatctgtag 240
ttactactcc agctgatgta gcgggtgtgt cagatggatt ttttatacgt ggccaaaatc 300
ttggtgctgt gggcagtgta aatgaacaac ctaatactgt tggtatgagt ttagaacaat 360
tcatcaagaa cgagctttat tcttttagta atgaaattta tcatacaata tctagtcaaa 420
tcagtaattc tttcttaata atgatgtctg atgcaattgt taaacatgat aactatattt 480
taaaaaaaga aggtgaaggc tgtgaacaaa tctacaatta tgaggaattt atagaaaagt 540
tgaggggtgc tagaagtgag gggaataata tgtttcagga agctctgata aggtttagga 600
atgctagtag tgaagaaatg gttaatgctg caagttatct atccgccgcc ttttcagat 660
ataaggaatt tgatgatgaa ttattcaaaa aggccaacga taattttgga cgcgatgatg 720
gatatgattt tgattatata aatacaaaga aagagttagt tatacttgcc agtgtgttgg 780
atggtttgga tttaataatg gaacgtttga tcgaaaattt cagtgatgtc aataatacag 840
atgatattaa gaaggcattt gacgaatgca aatctaatgc tattatattg aagaaaaaga 900
tacttgacaa tgatgaagat tataagatta attttaggga aatggtgaat gaagtaacat 960
gtgcaaacac aaaatttgaa gccctaaatg atttgataat ttccgactgt gagaaaaaag 1020
gtattaagat aaacagagat gtgatttcaa gctacaaatt gcttctttcc acaatcacct 1080
atattgttgg agctggagtt gaagctgtaa ctgttagtgt gtctgctaca tctaatggaa 1140
ctggtggtgg tggagctgct agtggaactg gaactagtgg aactactacg tctagtgaag 1200
gtgctggtag tggtaaagct ggaactggaa ctagtggaac tactacgtct agtggaactg 1260
gtgctggtgg agctggtagt ggtggaccta gtggacatgc ttctaatgca aaaattcctg 1320
gaataatgac actaactcta tttgcattat taacattta 1359

<210> 205

<211> 25
<212> DNA
<213> Babesia microti

<400> 205
aaatgttaat aatgcaaata gagtt   25

<210> 206
<211> 26
<212> DNA
<213> Babesia microti

<400> 206
caatgaataa tgatacaaat aaatgg   26

<210> 207
<211> 54
<212> PRT
<213> Babesia microti

<400> 207
Tyr Ile Val Gly Ala Gly Val Glu Ala Val Thr Val Ser Val Ser Ala
                  5   10   15

Thr Ser Asn Gly Thr Gly Gly Gly Gly Ala Ala Ser Gly Thr Gly Thr
             20   25   30

Ser Gly Thr Thr Thr Ser Ser Glu Gly Ala Gly Ser Gly Lys Ala Gly
         35   40   .   45

Thr Gly Thr Ser Gly Thr
     50

<210> 208
<211> 45
<212> PRT
<213> Babesia microti

<400> 208
Tyr Ile Val Gly Ala Gly Val Glu Ala Val Thr Val Ser Val Ser Ala
                  5   10   15

Thr Ser Asn Gly Thr Glu Ser Gly Gly Ala Gly Ser Gly Thr Gly Thr
             20   25   30

Ser Val Ser Ala Thr Ser Thr Leu Thr Gly Asn Gly Gly
         35   40   45

<210> 209
<211> 452
<212> PRT
<213> Babesia microti

<400> 209

Lys Tyr Asp Lys Arg Phe Asn Glu His Thr Asp Met Asn Gly Ile His
              5   10   15

Tyr Tyr Tyr Ile Asp Gly Ser Leu Leu Ala Ser Gly Glu Val Thr Ser
              20   25   30

Asn Phe Arg Tyr Ile Ser Lys Glu Tyr Glu Tyr Glu His Thr Glu Leu
          35   40   45

Ala Lys Glu His Cys Lys Lys Glu Lys Cys Val Asn Val Asp Asn Ile
      50   55   60

Glu Asp Asn Asn Leu Lys Ile Tyr Ala Lys Gln Phe Lys Ser Val Val
  65   70   75   80

Thr Thr Pro Ala Asp Val Ala Gly Val Ser Asp Gly Phe Phe Ile Arg
              85   90   95

Gly Gln Asn Leu Gly Ala Val Gly Ser Val Asn Glu Gln Pro Asn Thr
              100   105   110

Val Gly Met Ser Leu Glu Gln Phe Ile Lys Asn Glu Leu Tyr Ser Phe
          115   120   125

Ser Asn Glu Ile Tyr His Thr Ile Ser Ser Gln Ile Ser Asn Ser Phe
      130   135   140

Leu Ile Met Met Ser Asp Ala Ile Val Lys His Asp Asn Tyr Ile Leu
145   150   155   160

Lys Lys Glu Gly Glu Gly Cys Glu Gln Ile Tyr Asn Tyr Glu Glu Phe
              165   170   175

Ile Glu Lys Leu Arg Gly Ala Arg Ser Glu Gly Asn Asn Met Phe Gln
          180   185   190

Glu Ala Leu Ile Arg Phe Arg Asn Ala Ser Ser Glu Glu Met Val Asn
          195   200   205

Ala Ala Ser Tyr Leu Ser Ala Ala Leu Phe Arg Tyr Lys Glu Phe Asp
      210   215   220

Asp Glu Leu Phe Lys Lys Ala Asn Asp Asn Phe Gly Arg Asp Asp Gly
225   230   235   240

Tyr Asp Phe Asp Tyr Ile Asn Thr Lys Lys Glu Leu Val Ile Leu Ala
              245   250   255

Ser Val Leu Asp Gly Leu Asp Leu Ile Met Glu Arg Leu Ile Glu Asn
              260   265   270

Phe Ser Asp Val Asn Asn Thr Asp Asp Ile Lys Lys Ala Phe Asp Glu

```
                275                    280                       285
Cys Lys Ser Asn Ala Ile Ile Leu Lys Lys Lys Ile Leu Asp Asn Asp
    290                 295                 300

Glu Asp Tyr Lys Ile Asn Phe Arg Glu Met Val Asn Glu Val Thr Cys
305                 310                 315                 320

Ala Asn Thr Lys Phe Glu Ala Leu Asn Asp Leu Ile Ile Ser Asp Cys
                325                 330                 335

Glu Lys Lys Gly Ile Lys Ile Asn Arg Asp Val Ile Ser Ser Tyr Lys
            340                 345                 350

Leu Leu Leu Ser Thr Ile Thr Tyr Ile Val Gly Ala Gly Val Glu Ala
        355                 360                 365

Val Thr Val Ser Val Ser Ala Thr Ser Asn Gly Thr Gly Gly Gly Gly
    370                 375                 380

Ala Ala Ser Gly Thr Gly Thr Ser Gly Thr Thr Thr Ser Ser Glu Gly
385                 390                 395                 400

Ala Gly Ser Gly Lys Ala Gly Thr Gly Thr Ser Gly Thr Thr Thr Ser
            405                 410                 415

Ser Gly Thr Gly Ala Gly Gly Ala Gly Ser Gly Gly Pro Ser Gly His
            420                 425                 430

Ala Ser Asn Ala Lys Ile Pro Gly Ile Met Thr Leu Thr Leu Phe Ala
            435                 440                 445

Leu Leu Thr Phe
    450
```

```
<210> 210
<211> 2079
<212> DNA
<213> Babesia microti

<400> 210
aatccaacat ctagcctagt tagtatatat aggttaatat cacattatag attatctttg 60
gatgattggt tattatataa catgtcgctg aatgacgatt attttgctag ataaatataac 120
taccggtgat tctgaggacc tactttaaag agaataatta acatatctac cagaatcagt 180
tccaatttat gtattttaaa gctaatcact actcgaaaac tacggtgaaa atggaaaaac 240
aagtggaagc tgtatgtcgt ggaaagtcac tacattttat gtgggcaaat ttaataattc 300
taaatactat gttttttgatg ttaaaaagcg aaaaacacac tttaatgcac attttaacat 360
catctgtata atatatatat cagcgttgaa atcatatggc aaagtaata aagcgttaca 420
ttttgagcga ataaaggcac atatgcaaac gtatgaagcc ttgtatattt gtggaattat 480
attatgctag taatttgtga ttaataatgg caatatttat atacaaatat tcgagcgttc 540
tattatatgc atgcacataa ttaatcacaa actctcatat catggggcgg tttcgcccat 600
cataaacatt actgttagca ctctggtaga ttagcatggt gaatctctcg atacctgggc 660
tactgttgct ttccgcatat tccttaaatt ctgcaagtgc gggggatgta tatgagatat 720
```

```
cttctggtaa tccacccgac atagagccaa catctacttc tctagaaaca aatgtagtta 780
ccaactatat tccagaaccc aatgcggatt cagaatctgt acatgttgaa atccaggaac 840
atgataacat caatccacaa gacgcttgcg atagtgagcc gctcgaacaa atggattctg 900
ataccagggt gttgcccgaa agtttggatg aggggggtacc acaccaattc tctagattag 960
ggcaccactc agacatggca tctgatataa atgatgaaga accatcattt aaaatcggcg 1020
agaatgacat aattcaacca ccctgggaag atacagctcc ataccattca atagatgatg 1080
aagagcttga caacttaatg agactaacgg cgcaagaaac aagtgacgat catgaagaag 1140
ggaatggcaa actcaatacg aataaaagtg agaagactga aagaaaatcg catgatactc 1200
agacaccgca agaaatatat gaagagcttg acaacttact gagactaacg gcacaagaaa 1260
tatatgaaga gcgtaaagaa gggcatggca aacccaatac gaataaaagt gagaaggctg 1320
aaagaaaatc gcatgatact cagacaacgc aagaaatatg tgaagagtgt gaagaaggc 1380
atgacaaaat caataagaat aaaagtggaa atgctggaat aaaatcgtat gatactcaga 1440
caacgcaaga aatatgtgaa gagtgtgaag aagggcatga caaatcaat aagaataaaa 1500
gtggaaatgc tggaataaaa tcgtatgata ctcagacacc gcaggaaaca agtgacgctc 1560
atgaagaagg gcatgacaaa atcaatacga ataaaagtga gaaggctgaa agaaaatcgc 1620
atgatactca gacaacgcaa gaaatatgtg aagagtgtga gaagggcat gacaaaatca 1680
ataagaataa aagtggaaat gctggaataa aatcgtatga tactcagaca ccgcaggaaa 1740
caagtgacgc tcatgaagaa gagcatggca atctcaataa gaataaaagt gggaaggctg 1800
gaataaaatc gcataatact cagacaccgc tgaaaaaaaa agactttgt aaagaagggt 1860
gtcatggttg caataataag cccgaggata atgaaagaga cccgtcgtcg cctgatgatg 1920
atggtggctg cgaatgcggc atgacgaatc actttgtctt tgactacaag acaacactct 1980
tgttaaagag cctcaagact gaaacatcca ctcattatta cattgccatg ctgcaatttt 2040
ttactatttc attattccca tgcatgttta aggctttcc      2079
```

<210> 211
<211> 481
<212> PRT
<213> Babesia microti

<400> 211
Met Val Asn Leu Ser Ile Pro Gly Leu Leu Leu Leu Ser Ala Tyr Ser
              5   10   15

Leu Asn Ser Ala Ser Ala Gly Asp Val Tyr Glu Ile Ser Ser Gly Asn
          20   25   30

Pro Pro Asp Ile Glu Pro Thr Ser Thr Ser Leu Glu Thr Asn Val Val
          35   40   45

Thr Asn Tyr Ile Pro Glu Pro Asn Ala Asp Ser Glu Ser Val His Val
      50   55   60

Glu Ile Gln Glu His Asp Asn Ile Asn Pro Gln Asp Ala Cys Asp Ser
65   70   75   80

Glu Pro Leu Glu Gln Met Asp Ser Asp Thr Arg Val Leu Pro Glu Ser
                  85   90   95

Leu Asp Glu Gly Val Pro His Gln Phe Ser Arg Leu Gly His His Ser
              100   105   110

Asp Met Ala Ser Asp Ile Asn Asp Glu Glu Pro Ser Phe Lys Ile Gly
          115   120   125

Glu Asn Asp Ile Ile Gln Pro Pro Trp Glu Asp Thr Ala Pro Tyr His
 130   135   140

Ser Ile Asp Asp Glu Glu Leu Asp Asn Leu Met Arg Leu Thr Ala Gln
145   150   155   160

Glu Thr Ser Asp Asp His Glu Glu Gly Asn Gly Lys Leu Asn Thr Asn
    165   170   175

Lys Ser Glu Lys Thr Glu Arg Lys Ser His Asp Thr Gln Thr Pro Gln
   180   185   190

Glu Ile Tyr Glu Glu Leu Asp Asn Leu Leu Arg Leu Thr Ala Gln Glu
  195   200   205

Ile Tyr Glu Glu Arg Lys Glu Gly His Gly Lys Pro Asn Thr Asn Lys
 210   215   220

Ser Glu Lys Ala Glu Arg Lys Ser His Asp Thr Gln Thr Thr Gln Glu
225   230   235   240

Ile Cys Glu Glu Cys Glu Glu Gly His Asp Lys Ile Asn Lys Asn Lys
    245   250   255

Ser Gly Asn Ala Gly Ile Lys Ser Tyr Asp Thr Gln Thr Thr Gln Glu
  260   265   270

Ile Cys Glu Glu Cys Glu Glu Gly His Asp Lys Ile Asn Lys Asn Lys
  275   280   285

Ser Gly Asn Ala Gly Ile Lys Ser Tyr Asp Thr Gln Thr Pro Gln Glu
  290   295   300

Thr Ser Asp Ala His Glu Glu Gly His Asp Lys Ile Asn Thr Asn Lys
305   310   315   320

Ser Glu Lys Ala Glu Arg Lys Ser His Asp Thr Gln Thr Thr Gln Glu
   325   330   335

Ile Cys Glu Glu Cys Glu Glu Gly His Asp Lys Ile Asn Lys Asn Lys
  340   345   350

Ser Gly Asn Ala Gly Ile Lys Ser Tyr Asp Thr Gln Thr Pro Gln Glu
  355   360   365

Thr Ser Asp Ala His Glu Glu Glu His Gly Asn Leu Asn Lys Asn Lys
 370   375   380

Ser Gly Lys Ala Gly Ile Lys Ser His Asn Thr Gln Thr Pro Leu Lys
385   390   395   400

Lys Lys Asp Phe Cys Lys Glu Gly Cys His Gly Cys Asn Asn Lys Pro
   405   410   415

Glu Asp Asn Glu Arg Asp Pro Ser Ser Pro Asp Asp Asp Gly Gly Cys
          420   425   430

Glu Cys Gly Met Thr Asn His Phe Val Phe Asp Tyr Lys Thr Thr Leu
      435   440   445

Leu Leu Lys Ser Leu Lys Thr Glu Thr Ser Thr His Tyr Tyr Ile Ala
    450   455   460

Met Ala Ala Ile Phe Thr Ile Ser Leu Phe Pro Cys Met Phe Lys Ala
465   470   475   480

Phe

<210> 212
<211> 20
<212> PRT
<213> Babesia microti

<400> 212
Asn Ser Ala Ser Ala Gly Asp Val Tyr Glu Ile Ser Ser Gly Asn Pro
                  5   10   15

Pro Asp Ile Glu
              20

<210> 213
<211> 20
<212> PRT
<213> Babesia microti

<400> 213
Pro Pro Asp Ile Glu Pro Thr Ser Thr Ser Leu Glu Thr Asn Val Val
                  5   10   15

Thr Asn Tyr Ile
              20

<210> 214
<211> 20
<212> PRT
<213> Babesia microti

<400> 214
Val Thr Asn Tyr Ile Pro Glu Pro Asn Ala Asp Ser Glu Ser Val His
                  5   10   15

Val Glu Ile Gln
              20

<210> 215
<211> 20
<212> PRT
<213> Babesia microti

<400> 215
His Val Glu Ile Gln Glu His Asp Asn Ile Asn Pro Gln Asp Ala Cys
                    5   10   15

Asp Ser Glu Pro
            20

<210> 216
<211> 21
<212> PRT
<213> Babesia microti

<400> 216
Ala Cys Asp Ser Glu Pro Leu Glu Gln Met Asp Ser Asp Thr Arg Val
                    5   10   15

Leu Pro Glu Ser Leu
            20

<210> 217
<211> 20
<212> PRT
<213> Babesia microti

<400> 217
Leu Pro Glu Ser Leu Asp Glu Gly Val Pro His Gln Phe Ser Arg Leu
                    5   10   15

Gly His His Ser
            20

<210> 218
<211> 20
<212> PRT
<213> Babesia microti

<400> 218
Leu Gly His His Ser Asp Met Ala Ser Asp Ile Asn Asp Glu Glu Pro
                    5   10   15

Ser Phe Lys Ile
            20

<210> 219

<211> 20
<212> PRT
<213> Babesia microti

<400> 219
Pro Ser Phe Lys Ile Gly Glu Asn Asp Ile Ile Gln Pro Pro Trp Glu
                  5   10   15

Asp Thr Ala Pro
            20

<210> 220
<211> 20
<212> PRT
<213> Babesia microti

<400> 220
Glu Asp Thr Ala Pro Tyr His Ser Ile Asp Asp Glu Glu Leu Asp Asn
                  5   10   15

Leu Met Arg Leu
            20

<210> 221
<211> 20
<212> PRT
<213> Babesia microti

<400> 221
His Ser Ile Asp Asp Glu Glu Leu Asp Asn Leu Met Arg Leu Thr Ala
                  5   10   15

Gln Glu Thr Ser
            20

<210> 222
<211> 20
<212> PRT
<213> Babesia microti

<400> 222
Thr Thr Leu Leu Leu Lys Ser Leu Lys Thr Glu Thr Ser Thr His Tyr
                  5   10   15

Tyr Ile Ala Met
            20

<210> 223
<211> 21
<212> PRT

<213> Babesia microti

<400> 223
Glu Cys Gly Met Thr Asn His Phe Val Phe Asp Tyr Lys Thr Thr Leu
                    5   10   15

Leu Leu Lys Ser Leu
            20

<210> 224
<211> 20
<212> PRT
<213> Babesia microti

<400> 224
Asp Asn Glu Arg Asp Pro Ser Ser Pro Asp Asp Asp Gly Gly Cys Glu
                    5   10   15

Cys Gly Met Thr
            20